STATE OF MINNESOTA DISTRICT COURT
COUNTY OF RAMSEY SECOND JUDICIAL DISTRICT
- - - - - - - - - - - - - - - - - -
The State of Minnesota,
by Hubert H. Humphrey, III,
its attorney general,
and
Blue Cross and Blue Shield
of Minnesota,
Plaintiffs,
vs. File No. C1-94-8565
Philip Morris Incorporated, R.J.
Reynolds Tobacco Company, Brown
& Williamson Tobacco Corporation,
B.A.T. Industries P.L.C., Lorillard
Tobacco Company, The American
Tobacco Company, Liggett Group, Inc.,
The Council for Tobacco Research-U.S.A.,
Inc., and The Tobacco Institute, Inc.,
Defendants.
- - - - - - - - - - - - - - - - - -
TRANSCRIPT OF PROCEEDINGS
VOLUME 9, PAGES 1519 - 1774
JANUARY 30, 1998




P R O C E E D I N G S.

THE CLERK: All rise. Ramsey County District Court is now in session, the Honorable Kenneth J. Fitzpatrick now presiding.

(Jury enters the courtroom.)

THE CLERK: Please be seated.

THE COURT: Good morning.

(Collective "Good morning." )

THE COURT: Counsel.

MR. BERNICK: Good morning.

DR. RICHARD D. HURT

called as a witness, being previously sworn, was examined and testified as follows:

CROSS-EXAMINATION

BY MR. BERNICK:

Q. Good morning, Dr. Hurt.

A. Good morning.

Q. My name is David Bernick and I represent Brown & Williamson. I think I introduced myself to you at a break yesterday.

A. Yes.

Q. I'll be asking you some questions this morning. As I understand it, this is the first time that you've been testifying; correct?




A. That is correct.

Q. And this will be the first time you've been cross-examined; right?

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. That's correct.
Q. So you've become a grandfather, you're being cross-examined. Things are moving along.
A. Kind of scary, isn't it.
Q. I want to turn first to some of the testimony that you offered about when the industry had made public statements on various subjects over time. I tried to listen carefully and I counted a number of occasions on which you testified that the industry had not made public statements on various subjects. Do you recall your testimony?
A. I do, yes.
Q. For example, you were asked whether Philip Morris ever publicly stated that they thought of a cigarette as a dispenser of a dose unit of nicotine. Do you remember that?
A. I remember that.
Q. And there were other questions pertaining to whether, again, Philip Morris ever stated that they held an opinion, publicly stated they held an opinion as early as 1969 that nicotine was a drug. Do you remember that question?



A. I recall something like that, yes.
MR. CIRESI: Can we have a page number, Your Honor, when counsel references the transcript so we can follow along?
THE COURT: Do you have that available, counsel?
MR. BERNICK: Sure. That's page 1267, and the prior one was at page 1271.
BY MR. BERNICK:
Q. And indeed, repeatedly, as you testified concerning research regarding nicotine, I believe you were asked repeatedly whether public statements had ever been made by various tobacco companies regarding various aspects of nicotine research; correct?
A. I was asked questions like that, yes.
Q. Well throughout your testimony and virtually on every subject relating to nicotine research that you testified to; correct?
A. I -- I think that's correct, yes.
Q. Indeed, one of your themes was that there was internal discussion in the company documents about nicotine research that the companies hadn't stated publicly, hadn't revealed; correct?
A. The amount of information I saw about nicotine research that was contained in the internal documents



was orders of magnitude greater than what was in the public domain.
MS. BERNICK: I move to strike as not responsive, Your Honor. My question was, I'll put it to Mr. Hurt again, whether the theme of his testimony was that there was internal information regarding nicotine research that had not been revealed by the tobacco companies.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

MR. CIRESI: The answer was responsive, Your Honor.
THE COURT: Do you wish to respond again to that?
THE WITNESS: I think my response is correct.
THE COURT: Okay.
BY MR. BERNICK:
Q. I tried to listen carefully, and I don't think I heard you mention a single item of published research or published reviews sponsored by the tobacco industry. Did you mention any published research or published reviews on nicotine sponsored by the tobacco companies?
MR. CIRESI: I'm going to object to that as a misstatement of the evidence.
THE COURT: You can answer that.



A. I don't recall what I actually of all the things we talked about yesterday, we talked about a lot of different things, as far as specific items that you're referring to.
Q. I don't recall your testifying to a single public health recommendation regarding cigarette design. Did you?
MR. CIRESI: Objection, Your Honor. That wasn't the subject matter of his testimony, --
MR. BERNICK: Your Honor, I object --
MR. CIRESI: -- that actual design.
THE COURT: Counsel, just state your objection.
MR. CIRESI: Objection, outside the scope of direct.
THE COURT: Sustained.
BY MR. BERNICK:
Q. Dr. Hurt, did you testify regarding cigarette design and nicotine manipulation?
MR. CIRESI: Objection, outside the scope of direct.
THE COURT: Counsel, I think we're having trouble with your microphones, if you can adjust those, please.
MR. BERNICK: Mine?



THE COURT: Yours in particular.
MR. CIRESI: Can you hear? Is this all right?
THE COURT: I hope so. We'll get a -- we'll get a feedback, so --
MR. BERNICK: There was a question pending.
THE COURT: Maybe you should re-ask the question. I'm sorry to interrupt.
MR. BERNICK: Yes.
BY MR. BERNICK:
Q. Dr. Hurt, didn't you testify to what the cigarette companies were looking into by way of design of cigarettes for nicotine?

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.tobaccoindustrydocuments.ucsf.edu/docs/zzhd0001

A. I reviewed a lot of documents that had to do with pH and pH manipulation, nicotine delivery, free base. I reviewed a lot of documents like that.
Q. And isn't it a fact that you didn't tell the jury of a single public health recommendation for what the companies should do regarding nicotine design and changing nicotine levels? Isn't that a fact?
MR. CIRESI: Objection, outside the scope of direct.
THE COURT: Okay. It is outside the scope of direct.



MR. BERNICK: Your Honor, we would seek to establish that the work that we did internally was driven by public health authority recommendations. That is the force of this examination.
THE COURT: Why don't you ask that question.
MR. BERNICK: Okay.
BY MR. BERNICK:
Q. Dr. Hurt, are you familiar with public health recommendations, recommendations made by public health authorities concerning design of nicotine in cigarettes?
A. I was aware of -- and actually it came through in the documents -- of discussions back in the '60s and '70s about those sorts of issues.
Q. And isn't it a fact that under direct examination, you didn't pursue any of those recommendations? We didn't hear about them; correct?
MR. CIRESI: Your Honor, objection, it's outside the scope of direct. It's the subject matter of another expert.
MR. BERNICK: The whole point, Your Honor, is it is outside the scope of direct. He didn't pursue it in his direct examination. That's what we're seeking to establish.



MR. CIRESI: Your Honor, that's a speaking objection.
THE COURT: All right.
MR. CIRESI: That is a subject matter of another witness.
THE COURT: Counsel, counsel, you're both speaking your objections. Just state your legal objection or I won't rule on it.
MR. CIRESI: Objection, outside the scope of direct.
THE COURT: Sustained.
BY MR. BERNICK:
Q. Are you familiar, Dr. Hurt, with the recommendations that were made by the public health authorities?
MR. CIRESI: Same objection, Your Honor. It's irrelevant.
THE COURT: No, you may answer that.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.tobaccoindustrydocuments.ucsf.edu/docs/zzhd0001

A. I think I just answered that. But there were things within the documents that had to do with public health recommendations.
Q. Did you take the time before you came here to testify to -- to actually go ahead and review the recommendations that were made by public health authorities concerning cigarette design?



MR. CIRESI: Objection, scope of direct.
THE COURT: You may answer that.
A. You know, I may have. There was a lot of things that I reviewed. I reviewed thousands of pages of documents. I've also been practicing over the last 20 years in this field. And so in preparation for this I reviewed a lot of different things and they're all not -- maybe not all right at the tip of recall.
Q. Well did you take the time to review recommendations that were made by the National Cancer Institute regarding nicotine and cigarette design?
A. No, I did not.
Q. Did you take the time to review what the Surgeon General of the United States had to recommend about nicotine and design?
A. I recall some things, but I -- I couldn't give you a specific answer.
Q. Did you take the time to take a look at the cooperative working group that was formed between the tobacco industry and members of the National Cancer Institute insofar as it related to cigarette design and nicotine? Did you take time to look at those?
A. In which year was that?
Q. Well do you -- do you -- are you trying --
A. No, I just -- I need a point of reference



because I reviewed a lot of information and I reviewed a lot of documents, and I just need a point of reference. If it was in the '50s, I may not have gone back to do that. There were references to a lot of things that go back over these past 40 years, and I may or may not have done that. I just can't remember exactly what the timeframe was.
Q. Sure. Let me see if I can refresh your recollection.
Are you familiar with an organization called the Tobacco Working Group?
A. That was with NCI, I think, but I -- that's my only recollection of that.
Q. Are you familiar with any organization or group that involved meetings between tobacco industry scientists and the National Cancer Institute to try to work on a safer cigarette? Are you familiar with those proceedings?
A. Yes, I am. I think that they -- they ended with the conclusion that one could not be designed; a safer cigarette, that is.
Q. Has that --
A. In fact that was the end result of those

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. And that was after how many years of research?
A. Some -- I think you mentioned, or maybe one of your colleagues mentioned, after 12 years of -- of work, I think that was part of one of the opening statements. I recall that's just a couple years ago. And I think the statement was made that the federal government decided to disband the -- the working group or there was some kind of --
Q. Do you know how much money got spent on that Tobacco Working Group?
A. No.
Q. No idea? Ten million, 20 million, 50 million?
A. No.
Q. Did you take a look at any of the proceedings of the Tobacco Working Group to see what they had to say about nicotine and cigarette design?
A. No. I don't -- again, I've looked at a lot of documents over a long period of time, and if I did see that, I couldn't -- I couldn't cite you chapter and verse. There was a lot of -- lot of information that's transpired over the last 40 years.
Q. Did you take the time, Dr. Hurt, when you talked about what was in our documents internally, the research that was reflected there and the ideas about nicotine, did you take the time to go take a look at

the scientific literature, the articles and publication on the same subject at the same time to see if they were any different?
A. I did not do a direct comparison between what was in the scientific literature and what was in the internal documents. My impression of the internal documents was the depth of the information was very deep, it was very broad for a very long period of time. And -- and your company should know the most about your product. I mean that's what this is all about. If -- if a company is responsible and they act responsibly, they should know the most about their -- their product. And furthermore, when they find out it's hazardous, they should let the rest of us know.
Q. You said "impression." I think that's what you just said, that was your impression.
A. My impression of reviewing all of the documents. And -- and you have to think about impression as being kind of a global sort of thing.
Q. Global sort of thing.
A. So it's really a very large amount of information, and -- and that's -- that's what I reviewed.
Q. Before you came and got involved with the

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

litigation process, I understand from your work that you had published a number of research articles; correct?
A. I did, yes.
Q. And you spent a good deal of your time as a researcher; right?
A. I did.
Q. And is it true that as a scientific researcher, there are fairly well established methods and expectations for scientific work before it's good enough to get published and shared?
A. First all it has to be submitted. But obviously the criteria that are -- that are used as reviewers for research vary from one reviewer to the other. But there are standards on that.
Q. Okay. And those standards are pretty important; that is, if you want a piece of research to see the light of day, you got to make sure that the data is gathered correctly; right?
A. Sure.
Q. It can't be biased data; can it?
A. Well some -- some data is biased. It would be better if it were not, yes.
Q. And that when you actually write up the research results, it's also part of the scientific process to





fairly present the issues that remain, that haven't been resolved; correct?
A. It depends on which type of article's being written and -- and the subject matter as well as where it's being submitted, which journal. There's a lot of variability with that. But it -- it would be important, yes.
Q. Yes. But generally a scientist who writes an article according to proper scientific methods should acknowledge the limitations of the research that's been conducted and what's been found; true?
A. A lot of scientific writers obviously don't do that.
Q. But they should.
A. If it's done correctly, that's the way it should be done, yes.
Q. Okay. Now when you went from being a researcher and decided to work on this case, did you feel that the standards and methods that you had become accustomed to as a researcher were still standards and methods that you had to follow when you came in to testify in this courtroom?
A. I don't follow the question.
Q. Yeah. When you came to testify in this courtroom to the matters that you have spoken to, did





you feel that you had to follow the same level of quality and standards here that you had tried to achieve in your research over the years, or was it a different standard that you brought to this

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

courtroom?
A. Well I don't think it was a different standard, but when -- when you're a reviewer of other people's work, then you -- you take into account the totality of the work. Like if you're -- if I'm reviewing an article for somebody that's written an article and I'm reviewing it for a journal, then I review that article with all of the science in mind as well as the potential implications of the -- of the article, try to focus on the science, how well it's written. All of those factors go into -- to that. And that's basically the way I came into this, was pretty much -- I didn't know exactly what to expect at all, and I was overwhelmed by the information that is present in the internal documents about what was known that the rest of us didn't know.
Q. I guess what I'm getting at, and the reason I asked those questions, Dr. Hurt, is you told us about your impressions, your impressions about the state of knowledge that's reflected in the documents; correct?
A. Correct.



Q. But you never went ahead as a scientist and tested those impressions by actually taking a look and doing a direct comparison with the scientific literature; correct?
A. I did not do that.
Q. No.
Now I want to go through the first of these items here for a little bit this morning. Published research and reviews sponsored by the tobacco companies.
A. Okay.
Q. We'll see if we can refresh your recollection a little bit. And I'd like to begin -- I'd like to begin with a subject I think that you discussed, and I'm just -- all of this is going to be about nicotine. That's all I'm going to ask you about is nicotine.
A. Okay.
Q. So just get on the same page. That's what I'm going to be asking you about.
First let's talk about nicotine pharmacology, (writing on board) 'ology. You testified on direct examination concerning nicotine pharmacology; did you not?
A. I did, yes.



Q. Okay. Now in point of fact, in the area of nicotine pharmacology, isn't it true that American Tobacco company, one of my clients, American Tobacco Company has sponsored published research and reviews, published research and reviews concerning nicotine pharmacology since the early 1940's?
A. Could be. You know the one thing that was absent from all of these documents were American Tobacco Company documents. I didn't see any of

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

those. I mean if I did, there weren't very many. And so far as the published literature is concerned, most of us, when we look at the published literature, look at -- at what we can review, and if there is a notation of where the publication was sponsored by or who sponsored -- who sponsored it, that usually is noted. I can't recall of one from The American Tobacco Company that I reviewed in my -- in my work, no. But I also didn't see any American company documents in this case, or at least there were very few.

MR. BERNICK: Your Honor, if I could, I move to strike as not responsive. I think it's a very simple "yes" or "no" question. And I'll put it to you again, Dr. Hurt.

THE COURT: I think it's sufficiently



responsive.

MR. BERNICK: Well then maybe I wasn't being clear. I'll try again.

You understand, Your Honor.

THE COURT: Okay. I ruled on the question and the answer.

MR. BERNICK: All right.

BY MR. BERNICK:

Q. Dr. Hurt, isn't it a fact that The American Tobacco Company sponsored published research, articles, published research on nicotine pharmacology since the early 1940's?

MR. CIRESI: Objection, repetitious.

THE COURT: Sustained.

Q. Have you ever taken a look at the Medical College of Virginia published literature on nicotine pharmacology?

A. No. I mean I don't usually focus on an institution to try to figure out who's published what from where.

Q. Well I will --

Beyond the institution, let me just ask you about some individuals. Are you familiar with the publications on nicotine metabolism by Dr. Haag, H-a-a-g, beginning in 1940?



A. I may have seen something like that. But most of the time when we review things, we kind of go from contemporary time backwards, and that may have been buried in some of the references that I have seen, but I do not recall specifically reviewing an article by Haag, no.

Q. Well, but you --

A. That doesn't mean I didn't. Again, the -- when things come across my desk that are articles, I read them, and I don't always catalog them according to date nor person. I mean that's --

We review articles, and sometimes I keep them in files, sometimes I don't.

Q. Well you testified about what was in the company

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

documents about nicotine pharmacology going back to the early 1960s. Do you recall that?
A. I could have said that, yes. I've reviewed documents about nicotine pharmacology back into the '50s from the internal documents also. There's a large number of documents.
Q. Okay. Let's take the 1950s. Did you take a look and see what Dr. Haag and what Dr. Larson, from the Medical College of Virginia, had published on those same subjects during 1950?
MR. CIRESI: Objection, relevance.



THE COURT: Well you may answer that.
A. No, I did not. It's -- if I did, it was in the mix of all of this.
Q. If I were to tell you that the Medical College of Virginia, with tobacco industry funding, had published upwards of 45 articles on nicotine pharmacology from 1940 to 1975, would you know, "yes" or "no" whether that was true?
MR. CIRESI: Objection to the form of the question.
THE COURT: Sustained.
Q. Can you tell us anything about publications by Dr. Haag, Dr. -- Dr. --
A. Larson.
Q. -- Larson or Dr. McKennis?
A. Not off of top of my head, no.
Q. Let me ask you about something else. Isn't it a fact, dealing with reviews, that the tobacco industry funded the publication of the Larson & Silvette textbook beginning in 1961?
A. I think that's correct, yes.
Q. Are you familiar with the Larson, Haag & Silvette textbook?
A. Yes.
MR. BERNICK: Your Honor, may I approach



the witness?
Q. Do you recognize what I've handed you as the first volume of that text?
A. Yes, it is.
Q. Now there wasn't just one, there were four.
MR. BERNICK: May I approach -- approach the witness, Your Honor?
Q. There were four separate volumes over time that were turned out as part of that project; correct?
A. I think that's right. And when I checked them out of the Mayo Clinic library, the last time they'd been checked out was like 1970 or so. So it's --
These are present in our library like they are present in other people's library. So yes, I've seen these. But I can't remember if I checked all four of them out. I checked them out. But this is information that's -- that's in our libraries.
MR. BERNICK: Your Honor, I really would ask for an instruction to the witness to be a little

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

bit more responsive. This is a cross-examination. I asked him a very simple question, which is whether there were four books, I had an answer that dealt with the library and with the last time that they had been checked out.

THE COURT: I think that's sufficiently



responsive.
BY MR. BERNICK:
Q. Now those texts, Dr. Hurt, those texts, they're all about tobacco research; aren't they?
A. That's what it says, yes. Experimental clinical studies. That's the title of all of them.
Q. Is it true --
Is it true that at the time they were issued, they were regarded as authoritative texts insofar as they reviewed and collected literature on tobacco?
A. I don't know that for certain.
Q. Well they were authoritative enough to be cited in your own expert report; weren't they?
A. That's correct.
Q. Okay. I want --
A. I really did want to be as thorough as I could, but I did not read all four of these volumes. I mean --
So I reviewed them to the best of my ability, but I did not take the time to read them in detail.
Q. Okay. So --
A. So I would not infer that just because they were contained in my expert report, that I would view them as authoritative or expert.
Q. You did review these before you testified.



A. I reviewed some of them. I did not review them for detail.
Q. Did you review what they had to say about nicotine pharmacology?
A. I might have, but I -- I can't remember.
Q. Did you review what they had to say about the theory that people smoke for nicotine, nicotine titration?
A. I -- I really couldn't tell you.
Q. You reviewed the --
Did you review to see what they had to say, in a text sponsored by the tobacco industry, to see what they had to say about theories of addiction?
A. I recall reviewing that, but I couldn't tell you what the chapter and verse were.
Q. If you take a look at the first part of the first volume, if you could open that up for me, and as a matter of fact you can just look at the table of contents, I think that that would help out.
MR. CIRESI: Your Honor, we haven't had a proffer of the exhibit. We don't know the exhibit number and what rule it's being offered under.
THE COURT: Okay. Are you offering these as exhibits, counsel?

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

MR. BERNICK: I -- I think I may at some point in time. I was going to ask him some preliminary questions before I did.
MR. CIRESI: Then we object. I think --
THE COURT: I think now is the time. If you're going to offer them, offer them.
MR. BERNICK: Okay. We'll offer them, Your Honor, as a learned treatise.
MR. CIRESI: Under what --
As a learned treatise? No foundation.
THE COURT: Sustained.
BY MR. BERNICK:
Q. I think we've -- I will establish it again.
Dr. Hurt, at the time these were published, were they regarded as authoritative sources and reviews on the literature on tobacco?
MR. CIRESI: Objection, repetitious, asked and answered.
THE COURT: Sustained.
BY MR. BERNICK:
Q. If somebody were doing research at the time that these were issued in the 1960s and 1970s, would these have been regarded as reliable sources of information on the literature on tobacco?
MR. CIRESI: Same objections, Your Honor.
THE COURT: You may answer that.



A. I don't know. I wasn't even out of college in '68. Actually I was out of college in '66. I was in medical school in '68. And I don't recall seeing any of this in those -- those days.
Q. So before --
A. So I do not know the answer to your question.
Q. Before you testified about whether the industry knew something back in the 1950s and 1960s, knew something about nicotine that nobody else knew, did you take the time to see who was the authority on nicotine in the field at the time?
A. I assumed that the tobacco companies were the authority because this is their product. And they were because the documents say that. They knew more about this than anybody else in the world. In fact, there was one document that clearly said that: "We know more about our product than anyone else does."
MR. BERNICK: Your Honor, I move to strike as not being responsive. I asked him whether he looked to see who was the authority in the field.
THE COURT: It is non-responsive. It will be stricken.
THE WITNESS: Can you rephrase the question or ask the question again, because I don't think I understand it.



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. As you went back in time in order to assess whether the tobacco companies knew something that nobody else did in the field, did you take the time to find out who were the authorities in the field and what did they publish?
A. Yes, I reviewed a lot of articles from people as far back as the 1920s having to do with addiction, yes.
Q. Okay. So as you reviewed all the articles going back into the '20s on addiction, who were the authorities in the 1960s with regard to addiction and tobacco and nicotine?
A. Well one name comes to mind is Lennox Johnston, who published on this in the late '50s or -- actually the late '40s, early '50s. That's one name that comes to mind. I couldn't tell you a whole bunch of others.
Q. What about Dr. Larson, what about Dr. Haag, what about Dr. Silvette, were they recognized authorities at that time?
A. I think from just the fact that they published this amount of information --
I recognize these books as being -- containing a lot of information about this, yes.
Q. Okay. And in fact, weren't those texts cited by



the Surgeon General of the United States in 1964 when the first Surgeon General's report was issued?
A. I think they were, amongs a whole host of other -- other scientific issues, yes.
MR. BERNICK: Okay. At this point, Your Honor, I would offer those exhibits.
MR. CIRESI: Same objection under 803(18).
THE COURT: Sustained.
MR. BERNICK: Your Honor, we're offering for the --
I'll offer them for an additional purpose.
THE COURT: Okay.
MR. BERNICK: I'll offer them for the purposes of establishing what it is that the tobacco industry sponsored by way of published research and published reviews at the time.
THE COURT: That might be appropriate, through a different witness though, counsel.
MR. BERNICK: Well I believe this witness has discussed and testified to what the tobacco industry was doing over a 40-year period of time. Can I ask -- I'll put another question to him, try to lay some more foundation.
BY MR. BERNICK:
Q. Isn't it a fact that the tobacco industry



sponsored a publication of these texts?
A. I'd have to look at them. You said it was that way, but I did not -- I did not --
Q. Take a look at the first one. Just open -- if you could just open the first one.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

MR. CIRESI: Your Honor, I'm going to object to this form of question. It's inappropriate.
THE COURT: Counsel, I think you're going to have to move on. You will be allowed to reintroduce those through an appropriate witness.
BY MR. BERNICK:
Q. Let me just ask you, given the court's ruling, Dr. Hurt, can you testify today that there was anything that you saw in any of the tobacco company documents that you reviewed regarding nicotine pharmacology, nicotine pharmacology, that wasn't also set out in published articles and reviews at the same time?
MR. CIRESI: Objection.
Q. Can you testify to that as an expert today?
MR. CIRESI: Objection to the form of the question.
THE COURT: You may answer that.
A. I think the first thing that comes to mind is free base nicotine and how it can be affected by



ammonia and other -- other compounds. That comes to mind.
Q. Well you're -- you're prepared to testify that there were things in tobacco company documents about free base nicotine which, at the time those documents were written, were not also in the scientific published literature?
A. There are things in the literature about free base nicotine, but -- for example, the Surgeon General's report of -- of 1988 had, I think, two pages about pH and nicotine, and that's -- that's the whole Surgeon General's report, and I saw hundreds of pages of documents to do with pH and free base nicotine that somehow escaped that review, which was a very comprehensive review of nicotine addiction.
Q. But did you take a look at the published scientific literature on free base nicotine as of that time in point?
MR. CIRESI: Objection, Your Honor, it's irrelevant.
THE COURT: You may answer that.
A. At the time that -- when the Surgeon General's report was prepared, the people that prepared that report did a very comprehensive review of the literature, as well as their own expertise and their



own knowledge. And as I said, in that review, which was the state of the knowledge at that time about nicotine addiction, there were just a couple or three pages to do with -- with pH and with -- may have been only a few words about free base nicotine. And free base nicotine is central to the issue of the speed of delivery to the brain. And had it been so widely known, I would have expected the committee to have -- to have put that in the report, and it's not there.
Q. I'll put the question to you again. I don't

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

think that -- either I wasn't clear or I didn't get a response.
The question is real simple: As of 1988 you looked at the Surgeon General's report; correct?
A. Yes.
Q. Did you take a look at the published scientific literature on free base nicotine as of that point in time to see whether there was anything in those tobacco company's documents that was not also in the scientific literature?
A. Well there are several parts of that question. So did I look at the literature that was in the Surgeon General's report?
Q. No, no, no. No, no. The published scientific --



The Surgeon General's report is a report issued by an organization with the United States government; correct?
A. Based on the published scientific literature.
Q. I understand.
A. That's what it's based on.
Q. I understand that.
Now did you -- did you go ahead to the scientific literature itself and do a literature search on free base nicotine to see what might be out there?
MR. CIRESI: Objection, repetitious.
THE COURT: Okay. I think the question has been answered.
MR. BERNICK: I really don't think -- I don't think so, Your Honor.
THE COURT: Counsel, I've ruled on the objection. Proceed.
BY MR. BERNICK:
Q. Let me ask you this, Dr. Hurt: If we went back to the 1960s and talked about nicotine pharmacology, is there anything that you saw in the tobacco company documents which you can say did not appear in the scientific literature at the time?
A. You know, I've reviewed thousands of pages. I



can't recall one off -- off the top of my head. I reviewed a -- a lot of documents that were present, and they're just representative of the total volume of documents. I haven't reviewed all of the documents, but I --
Q. Is there --
A. Maybe you can say your question again, because I'm not --
Q. That's fine.
Did you take a look at the scientific literature at the time at all back in the 1960s, do a Medline search to make sure that you understood what the scientific literature said in the 1960s?
MR. CIRESI: Objection, repetitious.
THE COURT: It's becoming repetitious,

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.tobaccoindustrydocuments.ucsf.edu/docs/zzhd0001

counsel.
MR. BERNICK: Well I asked him about 1988 --
THE COURT: Counsel.
MR. BERNICK: Okay.
BY MR. BERNICK:
Q. Let's go beyond nicotine pharmacology, Dr. Hurt.
A. Okay. You want these back?
Q. No, I'm going to maybe make reference to them again.



Let's go to the issue of compensation. You testified what was in the tobacco company documents concerning compensation; correct?
A. I did.
Q. Now compensation is a --
Let me maybe go through a little bit of what compensation is before I ask you any questions about it.
You have told us that over time, as part of your direct examination, tar deliveries have declined. I just make that as a very rough line. Correct?
A. No, I think that that was part of the opening statement by Mr. Webber when he drew that line and had a chart out in front. And the delivery -- the delivery has declined, yes.
Q. But you agree that if it's in the Surgeon General's report itself, given the FTC delivery method, tar deliveries have declined; correct?
A. Deliveries have declined, yes.
Q. Okay. And the issue of compensation, at the same time that tar deliveries have come down, nicotine deliveries also have come down; correct?
A. They go hand in hand.
Q. Okay. Now the issue on compensation is whether, if somebody is smoking a lower tar delivery



cigarette, getting less of what they like and getting less nicotine than what they're accustomed to, will they start to compensate; that is, will they push the delivery of nicotine back up. That's what compensation is about; right?
A. That's right.
Q. Okay.
A. Inhale deeper, they hold their breath longer, cover up the inhalation holes if they know they're there. But most people don't obviously.
Q. Now you said that the compensation -- fact of compensation was in tobacco company internal documents that you reviewed; correct?
A. Yes, it was.
Q. Okay.
A. For a -- for a long time.
Q. Did you take a look and see when the theory of compensation first appeared in the scientific literature?
A. The anchor that we use for compensation as far

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

as low tar and low nicotine cigarettes are concerned is an article written by Benowitz in 1983. That is the anchor that the field uses to understand what happens to the blood nicotine and cotinine levels in smokers smoking low tar/low nicotine cigarettes.



1983 was -- it is the anchor that we use.
Q. Is it your testimony here that compensation, the theory of compensation didn't appear in the scientific literature until 1983?
A. That's not what I said. I said that is the anchor that we use within the scientific community where we take care of patients and understand what the delivery devices are about, what the blood levels of cotinine are about. That is the anchor that we use. And that showed basically that people do compensate. Their cotinine levels are the same at low delivery compared to regular delivery. That's what the article says.
Q. All right. I'm asking you this: Did you take a look and see when the fact of compensation, the theory of compensation, when it first appeared in the published scientific literature for everybody to see?
A. I don't recall that I did that, no.
Q. Are you familiar with an article that was published by Ashton and Watson in 1970 regarding compensation?
A. I recall the names, but I couldn't cite you the verse and chapter.
Q. Okay. If you could take a look at --
Do we have the volumes up there? Could we get



them?
MR. CIRESI: May we have an exhibit number, Your Honor?
MR. BERNICK: Yes.
MR. CIRESI: They've cited a lot of exhibits here.
MR. BERNICK: It's GK19.
MR. CIRESI: GK19.
MR. BERNICK: Yes. As a matter of fact, while that's getting done, maybe I can expedite it by just handing up an extra copy to the witness, if that's all right.
BY MR. BERNICK:
Q. Dr. Hurt, are you familiar with the British Medical Journal?
A. Yes.
Q. Is that a recognized and well-respected peer review publication?
A. It is.
Q. And do you see that this is an article by Heather Ashton -- Ashton dated September 19 of 1970?
A. It is, yes.
Q. And do you recognize Heather Ashton as being a -- a recognized and reliable researcher in the field of -- of smoking behavior?

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. I recall the name, but I -- this is really a long time ago, so I don't -- I don't that I would recognize her that way. But it -- I don't know that she's not either.
Q. Do you recognize --
A. I mean I wasn't -- I wasn't --
Q. I'm sorry?
A. I wasn't --
I graduated medical school in 1970, and so in -- in the times that I've been involved with this, it's been the last, you know, 20 years. So if you say she's an expert, I guess she was. But --
Q. Well you're not familiar with this article at all?
A. I don't recall seeing it, no.
Q. Well when -- when you testified about compensation, did you take the time to go back and review the literature that had been published about compensation?
A. You know, I guess when I looked at the article Benowitz wrote and the way that it was written, I don't know that this article was cited in that -- in that article. Again, we rely on -- on the experts that we -- that we view as being experts in this -- these areas to have done their work right, and that's



part of the peer review process. So I would -- I would bet that Benowitz had this article in that -- that article, but I -- I really didn't look to see for sure.
Q. Just so I'm plain, did you do any research, did you review the scientific literature, not just the Benowitz article, but did you do kind of a review of the scientific literature on compensation before you came to testify?
MR. CIRESI: Objection, repetitious.
THE COURT: It's repetitious, counsel.
Q. Can you say --
When was the first mention that you've seen in a tobacco industry document of the theory of compensation?
A. Oh, it must have been in the '50s your '60s, but I don't -- again, there are a lot of documents I reviewed, and -- and it's been a long time. That's the impressive part about this. And the other part is that it's not just knowing about it, it's what they did with it.
Q. Can you say, Dr. Hurt, that the fact of compensation, the theory of compensation was somehow a secret within the tobacco industry back in 1970?
MR. CIRESI: Objection, misstatement of the



evidence.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

THE COURT: You may answer that.
A. The consumer, which is the ultimate user of this product, was clueless to compensation. They didn't have an idea about compensation. And that's the important part of this.
The scientific community, it's important for us to know about this. But the companies have a responsibility to their consumers to tell them about their product because they know the most about their product. And the consumer did not have an idea about compensation, and I'm not sure they have an idea even yet today.
Q. I'm going to ask you in a few minutes a lot of questions about consumers and compensation, but my question was really directed to whether this was a secret from the scientific and medical community. Can you testify that the fact of compensation was a secret from the scientific and medical community at any point in time?
MR. CIRESI: Objection, asked and answered.
THE COURT: You may answer it again.
A. The documents that I reviewed had "SECRET" marked all over them, and the breadth of the information contained in the documents was deep and



it was broad and it dates back 40 years. That's what I know.
Q. But you didn't take a look at the scientific literature comprehensively 40 years ago; did you?
A. Did I go back and look at what was in the scientific literature? I relied on published articles like Benowitz and others, but I did not do a Medline search if that's the question. I did not do a Medline search.
Q. Let's talk about another one, smoking for nicotine. You testified to documents where people in the industry discussed and said that people smoke for nicotine. Do you recall that testimony?
A. Yes.
Q. And there are a number of documents that you cited to the court and the jury; correct?
A. There were, yes.
Q. Now smoking for nicotine, the idea that people smoke to get a nicotine dose, that's a pretty old theory; isn't it?
A. It's been the way that I've understood it for a long time, if that's old, but I couldn't tell you exactly what date it goes back to.
Q. Well you mentioned that you were familiar with work by Johnston; correct?



A. Yes.
Q. Isn't it true that in 1942, Johnston published an article that specifically said "I believe people smoke for nicotine?"
A. I'd have to go back and look at the article. That sounds -- that sounds feasible, yes.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. Well it's not only feasible, it is specifically an article that you referred to in your expert report; correct?
A. Uh-huh, yeah. But again, there's a lot of articles there, there's been a lot of documents, there's been a lot of time since my expert report which was in August of this past year, so there has been a lot of things that have happened since then and I'm not going to have immediate recall of these things.
Q. In fact, Johnston's theory went something like this: Smokers show the same --
MR. CIRESI: Excuse me, Your Honor. Counsel has not offered the exhibit. We don't know the exhibit number.
THE COURT: Counsel, will you be offering this as an exhibit?
MR. BERNICK: I may or may not depending upon what his answer is.



THE COURT: Well then I think you may have to rephrase your question.
MR. BERNICK: Okay. Well then if it would be easier to offer it --
Q. Could you take a look in the volumes that are before you at volume one, tab 25.
MR. CIRESI: May I have an exhibit number, counsel?
MR. BERNICK: It's GK226.
A. What number again?
Q. It's volume one, tab 25.
A. Okay.
Q. Is that the Johnston article?
A. Yes.
Q. Okay. This is an article that you specifically relied upon in your expert report; correct?
A. It's one of the articles I reviewed, yes.
MR. BERNICK: We offer it, Your Honor.
THE COURT: No objection under 803(18), Your Honor.
THE COURT: Okay. That will be received into evidence.
BY MR. BERNICK:
Q. It appeared in a journal called Lancet; correct?
A. Yes, it did.



Q. And Lancet is a fairly prestigious peer review publication; is it not?
A. It is.
Q. And the date is 1942; correct?
A. December 19th.
Q. Okay. And if we take a look at what Johnston did in that article -- it's kind of hard to read, but I'll try to focus in on it -- he performed an experiment where he said, "On the assumption that smoking tobacco is essentially a means of administering nicotine, just as smoking opium is a

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

means of administering morphine, nicotine was given hypodermically to 35 volunteers in known doses with a view to comparing its effects, and particularly its psychic effects, with those of tobacco smoking." Do you see that?
A. That's what it says.
Q. And in fact what he found out was that after people took nicotine intravenously, their urge to smoke was, at least temporarily, somewhat reduced; correct?
A. Well he says hypodermically, so I don't think that's intravenously. I think that's what he says, is hypodermically.
Q. Okay. I'm sorry. That's right.



A. It's not intravenously.
Q. Right.
A. Because intravenously is a different delivery.
Q. I understand.
A. Hypodermically would be beneath the skin intramuscularly. I don't know exactly what they did. But it does not say IV, no, I don't think.
Q. But the nicotine was administered hypodermically, and after it was administered he observed that people were less anxious to smoke; correct?
A. I mean I would have to read the -- read the whole thing again if you want me to comment on that, but I think that's what it said, yes.
Q. And at the conclusion he says as follows, "Smokers show the same attitude to tobacco as addicts to their drug, and their judgment is therefore" -- I guess -- it's hard to read -- "biased in giving an opinion of its effect on them." Correct?
A. That's what it says.
Q. Okay. And that's basically the theory that people smoke for nicotine; is it not?
A. This shows the pharmacologic effects of nicotine, and the absence of it produces withdrawal symptoms. Those would be some of the things you



might say.
Q. And isn't it true that the tobacco industry in 1967, by -- through a funding program at the American Medical Association, performed a similar experiment -- that is, looked for the effect of nicotine -- performed a similar experiment and published an article all about smoking for nicotine; correct?
A. I think that was mentioned in the opening statements, but I couldn't give -- I could not put my finger on the article. I think you or one of the other gentlemen mentioned that in the opening statements as far as what the AMA research was. But I -- I -- I don't have recall of that article.
Q. Well, do you dispute that when it comes to this theory, that the tobacco industry sponsored published

http://legacy.library.ucsf.edu/tid/xqp35a00/pdf
Source: http://www.tobaccoindustrydocuments.ucsf.edu/docs/zzhd0001

research and published reviews announcing this same theory to the medical and scientific community? Do you dispute that?

MR. CIRESI: Objection to the form of the question.

THE COURT: You may answer that.

A. I don't -- you know, I don't have knowledge of all the things that were published. That's beyond the scope and the comprehension of any individual.



So I -- I do -- I do not know that. So if you've got something you can show me, we can look at it.

Q. Are you familiar with the work that Luchese did in 1968?

A. I remember the name, but I don't remember the work.

Q. Are you familiar with the work that Armitage did in 1968 --

A. I remember the name.

Q. -- funded by the tobacco industry in Britain?

A. I remember that name, yes.

Q. Do you remember his announcing the same theory, published literature for everyone to see, "Smoking is for nicotine?" Do you remember Armitage's announcement of that theory?

A. I remember that -- the article -- the name, but I don't know how widely disseminated that was in the public domain. You keep talking about the public domain. We're talking about the scientific literature here, so I don't think that -- that most people review Lancet. I don't think anybody in this room would get Lancet, maybe, except me.

So what's in the scientific literature, unless it makes it to the consumer, doesn't really get to the right place. So if it was published, and I --



Armitage article, I remember an article by Armitage on this topic, but I could not cite you chapter and verse.

Q. Well Armitage's work was funded by the tobacco industry in Britain; wasn't it?

A. Say again.

Q. Armitage's work was funded by the tobacco industry in Britain; wasn't it?

A. It could have been. I don't -- I don't know that for certain.

Q. Okay. And Armitage actually published not one, but a whole series of articles; did he not, about nicotine?

MR. CIRESI: Your Honor, I'm going to the object to the form of the question.

THE COURT: You may answer that, if you know.

A. Could have. But I -- you know, again, I -- I do not know the breadth of what -- or I've never looked Armitage up under a lit. review. So if you've got something you can show me about what he did, I'd be

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

glad to look at it.
Q. Well let me just ask you: Isn't it true that the Surgeon General in the 19 --
You testified about the Surgeon General's report



in 1988; did you not?
A. Uh-huh, yes.
Q. Did you read -- did you read the Surgeon General's report in 1988?
A. I've read parts of it over the years since 1988. I've never really sat down and read the whole thing at one time.
Q. Did you take special care to go back and re-review the 1988 Surgeon General's report before you came in here to testify?
A. I reviewed parts of it. I did not the review the whole thing.
Q. Isn't it true --
A. I remember Armitage article -- an article by Armitage on the issue on pH in those two or three pages that had to do with pH. I think that was one of the articles cited from the early 1970s. But there were only a few articles about pH and pH manipulation that was included in the entire volume, and that was one of them.
Q. In fact, Armitage is one of the world's foremost nicotine pharmacologists; is he not?
A. I do not know that.
Q. In fact the Surgeon General's report in 1988 cites not just one, but one, two, three, four



different articles by Armitage?
A. Could be. I don't -- I did not look for Armitage's name in that report.
Q. Ashton -- the Ashton --
Dr. Ashton is another scientist sponsored by the tobacco industry in Britain; correct?
A. I don't know that.
Q. Ashton also was cited by the Surgeon General in 1988 regarding the effect of cigarette smoking; correct?
A. I do not know that. But if you say that it's true, I --
I'd have to look at the book to see who was cited. I mean you're holding a piece of paper, I don't know what's on it, and before I could say for certain it is true, I'd have to look at the book.
Q. I'll just hand you the piece of paper that I've got here. It's a list of articles that were published by the --
MR. CIRESI: Well --
Q. -- TRC --
MR. CIRESI: -- excuse me, counsel. This is an inappropriate form of examination. May we have --
Is this an exhibit?



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

MR. BERNICK: No.
THE COURT: Will you be introducing an exhibit, counsel?
MR. BERNICK: No. I'd like to refresh his recollection. It's a series of citations from the 1988 Surgeon General's report. Every single citation is to the TRC or the Medical College of Virginia.
THE COURT: Have it marked as an exhibit, please.
MR. CIRESI: May we have a copy, please?
(Discussion off the record.)
MR. CIRESI: Your Honor, this is apparently an article -- or a compilation prepared by the lawyers from a document. If he's referring to the '88 surgeon General's report, it is in evidence and we ought use that exhibit, not -- not a lawyer's reference.
THE COURT: Is that just part of the exhibit?
MR. BERNICK: Yes, it --
What it is, Your Honor, we've gone through the '88 Surgeon General's report and we've picked out the citations to work that was sponsored by the TRC in Britain and by the Medical College of Virginia, and rather than having the witness page through the '88



Surgeon General's report one by one to find all the cites, I just want to tender it to the witness.
MR. CIRESI: Well --
THE COURT: Well not that we don't trust you, counsel, but I mean if this is your summary, it's going to be difficult for the witness to testify from it.
MR. BERNICK: I can do it very easily another way. Maybe this will be a little bit simpler.
THE COURT: Okay.
BY MR. BERNICK:
Q. Dr. Hurt, I'm going to ask you a series of names and I'm going to ask you if you are familiar with any of these people based upon your review of the Surgeon --
THE COURT: Counsel, excuse me. I don't mean to interrupt you, but when counsel questions the witness, the questioning will have to be at the podium unless there is an exhibit. Then he can approach the witness.
Q. I'll read you a series of names, Dr. Hurt, and I want to know if you're familiar with any of these names based upon your review of their articles or the Surgeon General's report. Are you with me?



I already asked you about Armitage and Ashton. Beckett, Dr. Beckett, are you familiar with Dr.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Beckett's work?
A. Not off the top of my head, no.
Q. What about Dr. Clarke on the self-administration of nicotine solutions?
A. Is there a first name? There are a lot of Clarkes.
Q. M. S. G. Clarke.
A. I could be, but I -- you know, just -- I -- I couldn't give you an article to go with that person.
Q. What about Dr. Finnegan, J. K. Finnegan?
A. I've seen that name --
MR. CIRESI: Your Honor --
Q. You've seen the name?
MR. CIRESI: I object to this form of questioning. The Surgeon General's report should be in front of the witness so he can look at it if it may refresh his recollection.
THE COURT: Well I'll allow him to ask -- answer the question, and I'll give you the opportunity to go through the Surgeon General's report if you wish.
MR. BERNICK: Okay.
BY MR. BERNICK:



Q. Are you familiar with the work of J. K. Finnegan on the role of nicotine and the cigarette habit?
A. I recall the name Finnegan, but I -- I could not give you that exact citation.
Q. Do you know anything of what Dr. Finnegan found and published?
A. You're asking me questions about literature that's very broad, very large, that I may have reviewed it at any point in my career, and I -- I can't -- I cannot go back and look at even a list and tell you what's in those articles without seeing the article. I don't think that's really realistic to ask.
Q. Well I'm just asking you if you even know the names.
A. You just asked me if I knew about the article and what the results were. And I don't. I remember some of the names but I don't remember the content. I mean what I do on a day-to-day basis, I see a lot of information, and I do not catalog it according to who sponsored the research, which institution it came from. Some names become more familiar because you see them more often, and some things you rely on more of people that you recognize as being a colleague and a peer. Some articles are classified as being



classic articles that we all -- all refer to, like the Hammond and Horn articles.
And so you have to understand the process that I go through in processing a very large amount of information. There's no way in the world --
If you could go through the rest of this list, there's no way in the world I'm going to be able to

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

tell you, except those that may be most familiar to me, about what the content of the article was.
Q. Do you consider yourself an expert in nicotine pharmacology?
A. As it relates to how I take care of patients and how nicotine works in the patients that I work with and what cotinine levels do, what nicotine levels do, how it relates to that, I am.
Q. But if I were to ask you: Are you an expert in the scientific literature and what it said over time regarding nicotine pharmacology? Would you consider yourself to be an expert in that area?
A. As it relates to how I need -- information I need for taking care of patients to do the extent that I do, nicotine patches, nicotine gum, nicotine nasal spray, all of those things, I get phone calls almost every week from people around the country asking my opinion about what a nicotine or cotinine



level is. I get articles referred to me to review that have to do with nicotine pharmacology. That -- those are the bases that I use to -- as a colleague, that's the way I'd look upon a person as being an expert, is who do I refer to, who do I ask questions of, who do I send articles to to review before I submit them for publication? And that happens every week.
Q. I know we are getting to a breaking point and I'll try to reach it, Your Honor.
I guess my question is a little bit different, Dr. Hurt. Do you consider yourself to be an expert in what the scientific literature had said about nicotine pharmacology over time?
MR. CIRESI: Objection, asked and answered.
THE COURT: No, I don't think he's answered that question.
A. I have reviewed literature over time. Can I remember every piece of it? I don't think anybody can. So I have reviewed the literature over time and to that degree, yes, I know that literature. But if you ask me do I know every article that's ever been written about this topic, that's beyond the capability of anybody that I know of.
Q. So I guess maybe -- maybe he has answered the



question, but I'll just try it a slightly different way.
I'm not asking if you know every article. I'm asking whether you feel that you are proficient as an expert to take the stand and tell us the state of knowledge in nicotine pharmacology and how it's evolved over time in the literature? Can you do that as an expert?
A. I think I just answered that.
Q. I'm sorry?
A. I think I just answered that to the best of my ability.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

MR. BERNICK: I don't think I've gotten an answer to that, Your Honor. I'd like to know if he holds himself out as an expert in how the state of knowledge in nicotine pharmacology has evolved in the scientific literature, not his clinical practice, but the scientific literature over time.

MR. CIRESI: Your Honor, there is no such definition. That's -- that's counsel's definition. He has testified what he considers himself to be. Objection to the form.

THE COURT: I think he's answered this as best he can. I think we should move on.

MR. BERNICK: This would be a good time to



take a break, Your Honor.

THE COURT: All right. We'll take a short recess.

THE CLERK: Court stands in recess.

(Recess taken.)

THE CLERK: All rise.

(Jury enters the courtroom.)

THE CLERK: Please be seated.

MR. BERNICK: Thank you.

BY MR. BERNICK:

Q. Dr. Hurt, if you could turn to volume two, tab 53 of the materials you got there.

A. Binder two?

Q. Yeah, yes. Binder two, volume fifty -- tab 53, and the exhibit number which is TG237, it's the '79 Surgeon General's report.

Do you see that that is an excerpt -- I'll tell you it's an excerpt from the Surgeon General's report of 1979.

MR. CIRESI: Excuse me, Your Honor, which number was that again?

MR. BERNICK: It's TG237.

May I approach the witness, Your Honor?

THE COURT: Yes.

MR. BERNICK: If you'd like to see the



whole report, this is it.

BY MR. BERNICK:

Q. If you'd take a look at this exhibit, I think you'll see that it's a series of charts that deal with tar/nicotine deliveries over time. Page 207, 208, and 209. Ending at 212. Do you see that?

A. So this is the '81 report?

Q. No, I don't think so. Is it the '81?

A. Well it says "PREFACE: In this 1981 report...."

Q. Oh, I'm sorry, I'm sorry, it's the '81 report. I've given you '71. Do you have the other one?

Here you go. Sorry.

MR. CIRESI: What -- what exhibit number?

MR. BERNICK: It's the same exhibit number.

Q. Do you see that?

A. This is the '81 report. Yes. Which page?

Q. Just page through. You'll see it's copies of

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

charts, at 207, 208, 212.
A. What page number?
Q. It's page 207.
A. "Sales-weighted averages of 'tar' and nicotine per cigarette...?"
Q. Right. And the next page is 208, Figure 4.
A. "Sales-weighted averages of "tar" and nicotine per cigarette consumed...."



Q. And Figure 8 is 212.
A. "Index of average 'tar' and tobacco per cigarette annually, '67 through '79."
Q. Right. Dr. Hurt, do you --
Are you familiar with the '81 Surgeon General's report?
A. I have seen it and I have looked at parts of it, but I --
If I have looked at these figures, it's been a while. I mean that's --
Q. Irregardless --
A. There's a lot of information.
Q. I'm sorry.
Do you regard the Surgeon General's report as reliable authority for purposes of your work?
A. Yes. I think I've already stated that.
MR. BERNICK: We would offer, Your Honor, Exhibit TG2037 into evidence as a learned treatise. I'll note for the court, though, that for purposes of this examination I'm only going to be using the tar and nicotine charts that appear at those pages.
MR. CIRESI: No objection under 803(18).
THE COURT: That will be received into evidence.
BY MR. BERNICK:



Q. If you could turn to the chart at page 208, does this reflect the chart that appears there?
A. Yeah, that's the same chart.
Q. Okay. And this purports to show the average of tar and tobacco per cigarette -- I'm sorry, the average of tar and nicotine per cigarette consumed in the United States from '68 to '78; right?
A. Well it says sales-weighted averages.
Q. Sales-weighted averages.
A. I don't -- I guess I'm not clear what "sales-weighted" means.
Q. Okay. Do you see that the source is derived from the Federal Trade Commission?
A. Right. I see that.
Q. Okay.
A. So I guess I need to look at what's the explanation for Figure 4.
Q. If you'd like to.
A. Yeah, it says on page 205, "Figire 4 indicates that the decline in tar has continued inrecent years, all at a slower rate than observed from 1954 to 1965."

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. Okay. So I drew in very rough form on the board the decline in tar deliveries, and this is a chart that appears in the Surgeon General's report which



shows the decline in tar and nicotine deliveries as derived from the Federal Trade Commission, as you've just described; correct?
A. That's what this shows, yeah.
Q. Okay. Now I want to ask you --
A. You know, the tar --
Q. I'm sorry.
A. The tar went from 38 milligrams to 19 milligrams, the nicotine went from 2.3 to 1.3, according to the text.
Q. Right. In other words there's -- there's one scale for tar that's on the left side, --
A. Correct.
A. -- another scale for nicotine that's on the right, --
A. Right.
Q. -- so if you want to see what the nicotine is, you got to put your eye to the right, and if you want to see tar you got to put your eye to the left; right?
A. That's correct.
Q. Okay. Now there's been a lot of discussion -- there's been some discussion during your direct examination yesterday, and I think in principal part, about the method by which these deliveries are



determined; correct?
A. It's called the Federal Trade Commission methodology, yes.
Q. Okay. It's --
In fact, the method is called the FTC Cambridge method; right?
A. Because of the Cambridge filter, yes.
Q. Now the Federal Trade Commission is an agency of the United States government; is it not?
A. It is.
Q. And the Federal Trade Commission has for a long time had responsibility over advertising concerning cigarettes; correct?
A. I -- I really don't know. I guess I've never really -- I guess I was never really asked that question. I think that it does, but I don't know that for a fact. I've never looked it up to see. I know the Federal Trade Commission are the numbers that are used in these ads and such that are in the -- in -- in -- in the ads.
Q. Okay. We'll come back to --
A. As I understand it, the tests do not take place necessarily at the Federal Trade Commission. It's my understanding that some of the tests for these things actually take place within the tobacco industry



http://legacy.library.ucsf.edu/tid/xqp35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

itself. That's my understanding.
Q. Well let's --
We'll put the ads to one side and come back to them later. Just talk about the numbers.
A. Okay.
Q. Okay. Isn't it true that since 1967, the Federal Trade Commission itself, through its own staff, has done tests on cigarettes to determine their tar and nicotine deliveries using this method?
A. I have never asked that question of -- I -- I've never asked that question to know that for sure, but I -- that's been the assumption there's been, that the Federal Trade Commission has done this.
Q. And that's why it says derived from the Federal Trade Commission. These are the Federal Trade Commission's own data; correct?
A. It says that, derived from the Federal Trade Commission. But there's a little number after that, and I can't make it out on my copy. Is it a reference?
Q. I have to confess that mine isn't much better.
Here, if you take a look --
A. Sometimes -- sometimes they'll reference it in the back.
Q. If you take a look further down, it gives you a


clue here. It says "Based upon"-- talking about the correlation coefficient, "Based upon data from the Federal Trade Commission report."
The Federal Trade Commission issues reports that contain information on deliveries for cigarettes. Are you familiar with those reports?
A. Yeah. In fact when you get -- it's number six is what the little citation is there, and so it refers to number six on the back, "Report to Congress pursuant to the Public Health Cigarette Smoking Act for the year 1978," and it gives the -- the page number and the year.
Q. Okay. So --
A. So it's -- it is a report from the Federal Trade Commission to Congress, is what -- where this came from.
Q. So the FTC itself uses its Cambridge method to do the tests, makes a report to Congress. The data then is analyzed and appears in the Surgeon General's report; correct?
MR. CIRESI: Objection to the form of the question.
THE COURT: You may answer that if you know.
A. Well I think I'd already started to answer it


earlier, because I -- I don't know that the staff of the Federal Trade Commission does all the tests that go into these reports. It's my understanding that

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

the Federal Trade Commission methodology is used by the industry to make -- make the assessments on some of these, and I don't know if that goes into these reports or not.
Q. Are you familiar with the regulation that the FTC issued in 1967 directing its staff to do this testing?
A. I'm not aware of it, no.
Q. Let me then pursue the next step, which is --
Are you familiar with the fact that the FTC and the industry agreed in 1970 to use this method in setting forth the tar and nicotine deliveries in any advertisements for cigarettes? Are you familiar with that?
A. I'm not familiar with the document, but that's fairly common knowledge, I think, that that's -- that's what's done. But I don't -- I do not know about the agreement specifically, no.
Q. So we have a test methodology which is used by the FTC and which is also used in putting together figures for advertisements of tar and nicotine delivery; correct?



MR. CIRESI: Objection to the form of the question. Misstates the evidence.
THE COURT: You may answer that.
A. I'm not -- I'm not sure I understand the question. So maybe you can re --
Q. Is there any doubt in your mind, Dr. Hurt, that this method is a method that specifically was adopted by the Federal Trade Commission for use in stating tar and nicotine deliveries in advertisements? Is there any doubt in your mind about that?
A. Well that's what it says in the advertisements. I think the FTC is -- method is mentioned in the advertisements. I think that -- I recall that it is, but I --
Q. So as sit here today and as the jury hears it, is there any doubt in your mind this particular method of measuring tar and nicotine deliveries has been specifically adopted by the FTC to be used in advertisements for tar and nicotine deliveries of cigarettes?
A. I think that's correct.
Q. Okay. Now what this chart reflects, does it not, is that these deliveries have declined over time?
A. Uh-huh.



Q. I'm sorry?
A. Yes.
Q. Okay. Now isn't it also true that from the very beginning, from 1967, the FTC issued a statement in which it specifically said that this method, this machine does not necessarily capture what any particular smoker may get in smoking cigarettes? Are you familiar with that statement issued by the FTC

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

itself?
A. It was stated to the consumer? Who was it stated to?
Q. It was a public release, a public FTC release. Are you familiar with it?
A. No, I'm not -- I'm not. So it's something that was put into --
Was it put in the labels, that the methodology may not measure -- I -- I don't understand the question.
Q. I'm asking you whether you're familiar with the news release that was issued by the Federal Trade Commission on August 1 of 1967, the day that it announced that it was going to begin this testing, are you familiar with the public release that was issued by the FTC or not?
A. If you have it in your hand, I'll be glad to



look at it. I mean I don't --
MR. BERNICK: May I approach the witness, Your Honor? Actually I think this is probably in the book. Mine is marked up here a little bit.
MR. CIRESI: May we have an exhibit number, Your Honor?
MR. BERNICK: It's GK18.
MR. CIRESI: I didn't hear him, Your Honor.
MR. BERNICK: GK18.
THE COURT: GK18.
Q. I just want to know if you're familiar with it or not.
A. I've never seen this before that I recall, but it's --
I don't recall seeing this before, no. So I'm not familiar with it.
Q. Let me just ask you a more general question. Have you ever looked to see, Dr. Hurt, what the FTC itself has said about whether this method was designed to capture what any particular smoker would get? Have you ever looked into that question?
A. I guess I was a smoker back at this time, and I don't recall anything in the public domain as a smoker that said that this methodology might not do what it says it does on the labeling as well as in



the information that was available in the public domain. And I as a consumer did not go back to look and see what the Federal Trade Commission said at all. And so the public knowledge about this is the important part, and I -- I don't recall that and I did not go back to look at what the Federal Trade Commission said and when they said it, no.
MR. BERNICK: Your Honor, I move to strike. I don't think it's for the witness to determine what's important here. And that was not responsive to my question.
THE COURT: It is non-responsive.
Q. Did you ever go back and take a look to see what

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

the Federal Trade Commission of the United States has said about whether this methodology was designed to capture what any particular smoker gets?
A. No, I did not.
MR. CIRESI: Excuse me. I'm going to object on relevance.
THE COURT: The answer will stand.
Q. Now after 1967, when the FTC adopted this method, it's true, is it not, that the theory of compensation came to light?
A. I recall seeing documents that talked about compensation, I believe, before 1967.



Q. Well let's talk -- let's talk about specifics.
Isn't it a fact that the very first scientific article that was published about compensation was in 1970?
A. I would have to go back and look, but I -- what I saw in the documents predated that. Compensation was an issue that was present in the documents a long time ago.
MR. BERNICK: Your Honor, this is not responsive. I asked him specifically about publication in the scientific literature.
Q. Wasn't the first article that was published about compensation in 1970?
A. Is there an author to that article? Was it Armitage?
Q. It was the -- it was the Ashton article I gave you this morning. Isn't that the first?
A. I don't have that in front of me any more, but I do not know if that was the first.
Q. I don't think you were familiar with that article. Were you?
A. I recall the name. I think that's what I said earlier. But we didn't really even get into that article, as I remember.
It's still here. "Puffing Frequency and



Nicotine Intake in Cigarette Smokers," is that the one?
Q. Yeah.
A. 1970.
Q. It's about compensation; isn't it?
A. I'd have to read it.
Q. Take a look at it.
MR. CIRESI: May we have the exhibit number, Your Honor? The last one was not designated, so we don't have it.
MR. BERNICK: This one was offered -- this one was discussed this morning.
MR. CIRESI: Well I haven't memorized them, Your Honor.
THE COURT: Counsel, could you just refer to the number, please?
MR. BERNICK: Yeah, I'll try to get it out of here. Here we go. GK19.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

MR. CIRESI: Thank you, Your Honor.
A. Well it cites the Armitage article from '68 which says -- suggested that some people smoke in order to dose themselves with nicotine and pointed out that a cigarette smoker has literally fingertip control of how much nicotine he takes into his mouth. It cites that article from '68. I don't know if that





may have been referring to compensation. So I don't --

This one has to do with smokers who they tested in a simulator, a driving simulator, and also during a resting period after doing certain tasks. And then the summary -- and I haven't read the whole article, but in the summary it says "Smokers of cigarettes with high-retention filters took more frequent puffs."

So I'd have to look at -- I mean if you want me to read the whole article, I can read the whole article. But --

Q. That's fine for what we need now.

That's an article about compensation; is it not?

A. I don't see the word "compensation" mentioned anywhere in here as far as what is said. So if I were to do a literature search and say find out articles about nicotine compensation, unless "compensation" is mentioned in the title or in the abstract, it would never show up on a Medline search even -- even --

So I don't see "compensation" hear mentioned. Maybe it is, but I haven't read the whole article.

Q. You testified on --

A. But in the -- in the discussion it says it shows





that under varying conditions low nicotine cigarettes had higher puff frequency and drew into their mouths nearly the same amount as smokers of high nicotine cigarettes. Now they may have drawn it into their mouth -- are their blood levels in here?

Q. Puffing frequency.

A. Puffing frequency?

Q. Yes. Doesn't the literature on compensation often measure compensation by measuring puffing frequency?

A. Well a better way of doing that is to measure the absolute content in the blood. Compensation has to do with delivery of nicotine to the body and to the brain, and so the real science has to do with the nicotine which is the -- the drug we're talking about. So puffing frequency may or may not have to do with compensation depending upon all the other aspects, the depth of inhalation, how long they hold their breath. So the real -- the real test of this is how much nicotine gets into the bloodstream.

And I don't see here -- I mean they measured -- the nicotine content in the cigarette snubs or stubs were analyzed, but I don't see that

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

they measured the nicotine blood levels. And if they did, I'm just not seeing it.





Q. Isn't it true that compensation has been measured by scientists by taking a look at puff frequency, cigarette butt length, depth of inhalation? A whole series of measurements; correct?
A. Correct. But the -- the real -- the real proof of the pudding is what gets into the bloodstream.
Q. I know --
A. Because smokers are different. Each individual smoker is different.
Q. I understand that that's what you would like to see, but is the behavior that is described in this article in 1970, increased puffing frequency to maximize the nicotine dose, is that or is that not compensatory behavior?

MR. CIRESI: Your Honor, I'm going to object to the form of the question.

THE COURT: You may answer that.

A. All I can tell you is what -- what they said, which is "This investigation" -- and this is in the first sentence of the discussion, "This investigation shows that under varying conditions, smokers of low nicotine cigarettes had a higher puff frequency and drew into their mouths nearly the same amount of nicotine as smokers of high nicotine cigarettes."
But that doesn't assure it gets into the





bloodstream just because they put it in their mouth. In fact it probably doesn't get absorbed very well in the mouth.
Q. So you're assuming the cigarettes there -- cigarette smokers there took more puffs in their mouths but didn't inhale more?
A. Sure. People smoke -- smoke cigarettes differently. They puff differently. I've observed people who to do that a lot, puff into the mouth, blow the smoke out. People do a lot of things with cigarettes. So I don't --
Puffing frequency is part of it, depth of inhalation is part of it, but the real proof of it as far as compensation is how much nicotine gets into the bloodstream.
Q. So as I understand your interpretation of this article, you believe that what it shows is that people smoke more -- took more puffs to get the optimum nicotine dose by puffing into their mouths more but not inhaling it?
A. I -- I can only tell you what they said. They -- they say -- they say, "These findings are thus consistent with the possibility that there exists an optimum," in quotation, "nicotine dose for a given activity, and that smokers unconsciously





http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

modify their smoking behavior in an attempt to attain this dose."

So in that respect we're talking about a drug-delivery system, but they just didn't measure nicotine levels in the bloodstream.

Q. I see. So --

But if in fact all they did was to puff it in their mouths, they wouldn't have gotten the nicotine; right, in their lungs?

A. I guess that's the point.

Q. So all these people are puffing away to get nicotine, but they're not inhaling it to get the nicotine.

A. It just doesn't say that. It says puffing frequency, they puff --

You could make the assumption that they inhale, but I'd have to read the whole thing to see if that's what they actually did. I mean smokers inhale, you're right, but this is talking about puffing frequency.

Q. What if we made the assumption that these smokers inhaled, Dr. Hurt. Could we make that assumption for a moment?

A. If they were regular smokers, that's probably the case.





Q. Okay. Let's make that assumption. If that were true, that is, if these smokers inhaled, isn't what that article describes compensatory smoking behavior?

A. It's one part of it.

Q. Okay. Now in point of fact, from that point forward a series of articles came out on compensation; correct?

A. Well I still don't know if this '68, the one from Armitage, was the first one. You want to know if this was the first one, and I don't know if this was the first one or not.

Q. Have you ever read the Armitage '68 article?

A. No, I --

I may have, but I really can't recall. I'd have to look back and see if it's --

Q. Okay. Subsequent to these articles, isn't it a fact that a wide series of articles were published on compensatory smoking behavior?

A. There may have been.

Q. Okay. You have cited articles, for example --

You've cited internal memos, for example, from my client, British-American Tobacco Company, by a researcher named Creighton. Do you recall that?

A. I recall Creighton, yes.

Q. And in fact you cited memos that she wrote





regarding compensation internally; right?

A. I recall that. But I couldn't give you the exact one.

Q. Isn't it a fact that Creighton herself published

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

her views on compensation in a book that was put out by the British-American Tobacco Company?
A. Could have. I'd have to see it to see.
Q. Are you familiar with the "Smoking Behavior" book that was published in 1978 by Thornton?
A. By the British-American Tobacco Company?
Q. By Thornton and others. Just take a look.
MR. CIRESI: Your Honor, again, may we have the exhibit numbers before --
MR. BERNICK: Yes, I'll give you the exhibit number now. That's GK175.
MR. CIRESI: Thank you.
BY MR. BERNICK:
Q. Are you familiar with Dr. Thornton's book?
A. I've never seen a book like this before.
Q. Okay. Could you tell us what the title of that is?
A. It's called "Smoking Behavior, Thornton."
Q. Now if you had done a literature search on Creighton --
Creighton has a paper in there, does she not?



A. I don't know. Is this in --
Am I supposed to do this? Is this in evidence?
Q. I'm just asking him to take a look at the table of contents.
A. I just need to know.
MR. CIRESI: Your Honor, this document, in addition to the 20,000 pages they've identified here, is 400 pages. Maybe we could have a citation to it so we can follow.
MR. BERNICK: Well first of all, it's 400 pages all about smoking behavior. That's why we identified it. I asked him to take a look at the table of contents particularly for that purpose, Your Honor.
THE COURT: All right. Why don't you take a look at the table of contents.
THE WITNESS: Okay.
A. Okay.
Q. Do you see that Armitage has contributed to this text? Item 18.
A. Yes, 18, Armitage.
Q. Okay. You also referred to documents that were authored by a Dr. Dunn, a tobacco company scientist. Does he have articles that have been published in the open literature here, items 15 and 16?



A. There is a P. J. Dunn. I can't recall the initials of the Dunn that -- that I saw in the -- the documents. There was a Dunn.
Q. Okay. And items 21 through 23 are all by Dr. Creighton; correct?
A. There is a Creighton, D. D. Creighton, yes.
Q. Okay. Do you know whether that's the same Dr. Creighton that wrote the memos that you reviewed with the jury the other day?

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. No. I can't remember the initials of that either.
Q. Do you know if the views of Dr. Creighton, as expressed in the internal memos, are also expressed in these published articles?
A. In the internal documents?
Q. Yes.
A. Do I know if they're the same?
Q. Do you know whether the views she expressed about compensation in the internal memos that you showed the jury are the same views that she published?
A. Not without comparing them side by side.
Q. And you haven't done that comparison.
A. No.
Q. A variety of others at --



Well let me take your attention to document --
A. This -- I don't even know --
Q. Excuse me.
A. -- if our library has this book.
Q. What?
A. I do not know if our library has this book.
Q. I don't know if it -- if it does either. I didn't really ask you that.
Dr. Hurt, would you take a look at item 26?
A. In the table of contents?
Q. Yes.
A. Yes.
Q. Now there is an article there, a chapter by M. H. Russell. Do you recognize Dr. Russell?
A. It says "Addiction Research Unit, Nicotine Titration Studies." M. H. Russell is Michael Russell from England, yes.
Q. Isn't he one of the most widely respected authorities on nicotine addiction in the world?
A. He's an expert, yes. He's an authority.
Q. Okay. Do you --
Did you ever take a look at what he's written on compensation?
A. I've got a lot of things that -- that he's written.



Q. On compensation.
A. Could have. I couldn't tell you. There's a lot of literature that I've read.
Q. Well these articles that came out about compensation in the 1970s, isn't it true that compensation in the 1970s was a widely studied phenomenon within the field of smoking behavior?
A. I'd have to review all of this to be able to -- to agree to that. I guess the other thing is that who else knew? The consumer didn't know.
Q. Well if you take a look at Dr. Thornton's book in particular, isn't Dr. Thornton's book also cited by the Surgeon General in 1988?
A. I have not checked that.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. Do you have the Surgeon General's 1988 report there?
A. '88?
Q. Yes.
A. No, I do not have it here.
MR. BERNICK: Did that come in yesterday? Do you still have that around?
MS. NELSON: The court will have it.
MR. CIRESI: I have some pages of it that I would give counsel.
MR. BERNICK: Let me see if I can find a



full copy. Just take a minute.
May I approach the witness, Your Honor?
(Book handed to the witness.)
BY MR. BERNICK:
Q. Is that a copy of the 1988 report that you referred to in your direct examination?
A. Yes. It's the one on nicotine addiction.
Q. If you take a look at pages -- well let's see. I'm not sure I'm going to be able to give you all the cites. Do you have the particular cites there?
If you take a look at the page of references at --
A. I have 58.
Q. -- 217. I'm sorry, page 217.
A. Okay.
Q. Do you see there's a list of references there?
A. Yes, there are a list of references.
Q. Okay. And if you cast your eye down the references, do you see Dr. Ashton and a cite to Dr. Ashton?
Should be right there on the first page, page 217.
A. I just want to see what the topic was.
Yes, Ashton is there for two, three, four articles -- or four references.



Q. In fact the citation to Ashton is actually a citation to Dr. Thornton's book that I just asked you about; right?
MR. CIRESI: Excuse me, Your Honor. Which citation? There's three different Ashtons in here.
MR. BERNICK: If you take a look at the -- the same --
THE WITNESS: It's the first one.
Q. The first and second are the same person, but the citation for the first one is in the Thornton book.
A. Thornton book, yes.
Q. It was put out by British-American Tobacco; correct?
A. Well it says that in the front. It says Group Research & Development Center, British-American Tobacco Ltd., but it's Churchill Livingstone --
Maybe it says it in the introduction that it was produced by B.A.T, but I'm not --

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

It says, "The views are, of course, entirely those of authors and not necessarily those of the British-American Tobacco Company, Ltd. or the editor." So I'm not sure what you mean by "put out by."

Q. Do you know who Dr. Thornton is?



A. I've heard his name, but I have never -- I don't know any more about him.

Q. Do you recognize that he was a scientist at BATCo for many, many years?

A. I -- I guess I don't know that.

Q. Take a look at page 219 of the Surgeon General's report.

A. Okay.

Q. Do you see that the Surgeon General also contained -- also has cited to Dr. Creighton, the BATCo scientist. Down at the bottom of the page.

A. There are two references to Creighton.

Q. Again to the same book; correct?

A. It's hard to tell. It doesn't have Thornton as the editor. It says "Smoking Behavior, Physiological and Psycological Patterns. This one says "Smoking Behavior." It says on the inside, "Physiological and Psycological Influences." Maybe it's just a mis -- typo or something, I don't know. Doesn't sound like the same book, but maybe it is.

This one says "Physiological and Psycological Influences," this one says "Influences," too.

Q. Probably the same book; right?

A. It is probably the same book.

Q. Okay. So Surgeon General has three different



citations to Dr. Creighton, again out of the Thornton book; correct?

A. There are three there, yeah. But there are -- you know, there's 30 pages of citations in this one section.

Q. All right. And page 234, could you flip through to that?

A. Okay.

Q. Do you see Dr. Schultz?

A. "Smoking Behavior in Germany?"

Q. Yes.

A. "The Analysis of Cigarette Butts?"

Q. Right.

A. I see that.

Q. And that's another citation to Dr. Thornton's collection of articles; correct?

A. That's from the same book, yeah.

Q. Isn't it true that all of the citations that are contained in the Surgeon General's report and Dr. Thornton's book pertain, in fact, to smoking behavior and in particular to compensation?

A. I'd have to look at each one of them. I don't -- I don't know that for sure at all.

Q. When you read through the Surgeon General's

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

report and you knew that you were going to testify



about compensation, did you take the time to review any of the articles that were cited by the Surgeon General?
A. Some.
Q. Not these apparently.
A. I've never seen this book. I wouldn't know where to go to get it.
Q. Surgeon General knew where to get it.
A. Apparently.
Q. Now even after the -- the compensation articles came out in 1976 -- this was --
A. Which articles were those?
Q. I'm sorry, I misspoke.
Even after the compensation articles that we've just been talking about, Ashton in 1970, Thornton in 1978, it would be fair to say that by the mid-1970s at the latest, people who were involved in tobacco issues were familiar with the concept of compensation?
A. Not the smokers.
Q. Not the smokers.
What about the scientists and the Federal Trade Commission and the Surgeon General?
A. Some of them were.
Q. Okay.



A. But not all of them.
Q. What about the National Cancer Institute?
A. Probably some scientists there were aware, but certainly not all of them.
Q. Have you ever looked into that?
A. Pardon me?
Q. Have you ever looked into what the National Cancer Institute knew about compensation in the mid-1970s?
A. I can't recall a specific article about what the NCI knew. There has been more recent articles about low tar/low nicotine cigarettes. There's a monograph, I can't remember if that comes from NCI or from another group, but that's more recent, that's actually in the 1990 literature.
Q. Well let me just ask you something. We'll pursue it this way: Isn't it true that by 1976, the scientists with the National Cancer Institute were specifically recommending that the tobacco industry continue to reduce deliveries of tar and nicotine?
A. I can't recall a specific document that says that. That's the -- that's the general understanding that that's what the National Cancer Institute was trying to -- trying to get the industry to do, was to reduce the toxic, hazardous materials in cigarettes



http://legacy.library.ucsf.edu/tid/xqn05a00/pdf
Source: https://www.industrydocuments.ucsf.edu/docs/zzhd0001

because they recognized that it caused people to die.
Q. Isn't it also true that the National Cancer Institute scientists actually set targets for tar and nicotine delivery for the industry to aim at?
A. I -- I couldn't tell you that specifically.
Q. Isn't it true that by 1979 the Surgeon General of the United States was telling the tobacco industry "Continue to lower deliveries?" Do you know one way or another?
A. Was that -- was that in the Surgeon General's report, you mean?
Q. Are you familiar with the 1979 Surgeon General's report on that issue, Dr. Hurt?
A. I have read lots of things from the Surgeon General's report. There's a lot of them. I do not have all of them at the tip of my memory, no.
Q. Do you have any recollection that in 1979, the Surgeon General in fact did basically -- not basically -- in fact endorse the idea of lowering deliveries?
A. That could be. I mean I -- I couldn't tell you the page in that report that that might be on. If you've got it, I'll be glad to look at it.
Q. Isn't it a fact that by 1981, the Surgeon General, even recognizing the fact of compensation,



still stood behind the idea that industry should lower deliveries?
MR. CIRESI: Objection to the form of the question.
THE COURT: Sustained.
Q. Isn't it a fact --
Dr. Hurt, do you know what the Surgeon General said in 1981 about compensation and deliveries?
A. I'd have to look at the document.
Q. Do you know what the Surgeon General said at any point in time about bringing down tar and nicotine deliveries even though there was compensation?
A. I couldn't really -- I couldn't cite you a -- a specific phrase. The whole -- the whole point is the Surgeon General was concerned about the death and disability that was being caused by cigarettes and they were encouraging the industry to do whatever they could to lessen that. I think that's the general message.
Q. General message. You can at least tell us of the general message from public health authorities in the United States.
Isn't it true the public health authorities in the United States were telling the tobacco companies, "Lower deliveries?" Isn't that what they were



saying?
A. Well, you know, the real public health authorities that have to do with drug-delivery devices is the FDA, and I don't know that the FDA ever told -- in fact I don't think the FDA ever had

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

an opportunity to tell the tobacco industry to lower the hazard or even the nicotine content of the cigarettes. So "public health authorities" is much broader than just the Surgeon General. In fact the Surgeon General's office is a relatively small office within the government.

So if you're talking about asking or encouraging, I think that may have happened. But the true authority to regulate rises out of other -- other authorities, like the Food and Drug Administration.

Q. Well did the Food and Drug Administration have authority to regulate cigarettes in 19 -- in 1970s?

A. No, they did not.

Q. Right.

A. They should have, but they didn't.

Q. I understand your views on that.

The fact of the matter is the Federal Trade Commission did have authority to regulate the cigarette industry; correct?



A. To the best of my understanding, yes.

Q. And the fact of the matter is the Surgeon General had a responsibility to the people of the United States to speak to what the tobacco industry should do in order to make its products safer; correct?

A. The Surgeon General is -- was -- is a person within the government to speak to the issue of public health from a lot of different points -- a lot of different aspects of the public health, not necessarily only to do with cigarettes, but the -- the Surgeon General does not have any authority to mandate that the tobacco industry make their product less hazardous.

Q. I didn't ask you that.

A. They don't even have any authority at all. Nor --

Q. I didn't ask you that.

A. Well --

Q. I asked you isn't it a fact that the Surgeon General has a responsibility to the public of the United States to speak to the issue of what tobacco companies could do in order to make cigarettes safer; correct?

MR. CIRESI: Objection to the form of the



question, Your Honor.

THE COURT: You may answer that.

A. The Surgeon General is not a policy maker. The Surgeon General basically can make reports and make recommendations to -- to the Congress, and that's where these reports go to, and then it's up to Congress to do something about that.

Q. You're telling me the Surgeon General of the United States didn't make recommendations to the tobacco industry in 1981 and 1979 and 19 --

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. The Surgeon General makes reports --
MR. CIRESI: Excuse me, doctor. Objection, argumentative.
THE COURT: It is argumentative. It's a misstatement also of his answer, counsel.
Q. Isn't it a fact -- just tell me if you know -- the Surgeon General made recommendations regarding the design of cigarettes in his 1979 report and his 1989 report?
MR. CIRESI: Objection, repetitious, form of the question.
THE COURT: I'll allow you to answer it again.
A. Could you repeat the question?
Q. Isn't it a fact that the Surgeon General of the



United States made recommendations to the industry regarding the design of its cigarettes in 1979 and 1981?
A. The reports that are in front of us, as far as the Surgeon General reports, are addressed to Congress, that's where the Surgeon General reports to, and I have not seen any documents that would say the Surgeon General communicated with your companies, BATCo or to Brown & Williamson or to the other companies about what to do. I haven't seen that.
Q. Take a look at what the National Cancer Institute did on the same issue?
A. They had a working group as far as lower tar/lower nicotine delivery cigarettes. I recall that, yes.
Q. Were there also outside scientists, like Dr. Russell, who made recommendations to the industry to lower its tar deliveries?
A. I don't --
I have not seen a communication between Dr. Russell and the industry, no.
Q. Well I'm talking about publications. You can communicate with people other than by writing letters. You can write articles that make recommendations; correct?



A. Articles are meant to convey the science and to interpret the -- the -- the work that's being done to convey it to the scientific community. That's what -- that's what the articles we're talking about are. That's what Mike Russell's article that you mentioned in the Surgeon General report was to do, it's for the scientific community.
Q. Articles don't make recommendations?
A. Some do.
Q. Some do.
A. Some do. But I don't know -- I don't know that Mike Russell ever had an article recommending to do what you just suggested, which is --
Q. Did you take a look at the articles that Mike Russell published in connection with the Banbury

http://legacy.library.ucsf.edu/tid/xqp35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

conference in 1980 regarding what should be done with nicotine and tar deliveries?
A. I've seen a lot of his articles. I don't recall the Banbury conference. I can't -- I can't put a hook on that to give you the exact reference. I've seen a lot of his articles. But if you've got it, I'd be glad to look at it.
Q. Wasn't it Mike Russell's view -- one of the people --
Mike Russell was one of the people looking at



compensation; correct?
A. He had -- he did --
He's done work with nicotine, nicotine levels, yes.
Q. Yes. And wasn't it Mike Russell's view, even after he had published articles on compensation, wasn't it still his view that the industry should try to bring tobacco deliveries -- tar delivers I down? Wasn't that his view as stated in his articles?
A. I'd have to see the article you're talking about.
Q. Now familiar with those?
A. I'm familiar with a lot of his articles.
Q. Dr. Hurt, it's a fact, is it not, that when the tobacco industry brought deliveries down, tar deliveries down, they did so in response to the concerns being expressed by the public health community, isn't that a fact?
A. I don't know what you're reading from.
Q. I'm just asking you if it's a fact.
A. I don't know what you're reading from, so I -- I'd like to see what you're reading from to know what you're quoting. Where is the quotation from?
Q. Your deposition.
Isn't it a fact that the tobacco industry



lowered deliveries in response to the concerns being expressed by the public health community? Isn't that a fact?
A. Was that a question in my deposition?
Q. That was an answer in your deposition.
MR. CIRESI: Well can we have the page number, Your Honor, and the deposition? Could we just follow procedure?
MR. BERNICK: Your Honor, the witness asked me specifically what I was reading. I'd be happy to do that.
MR. CIRESI: Excuse me --
THE COURT: Counsel, it's not appropriate to cite a witness's deposition without giving him the opportunity to see the deposition and the page number and the date of the deposition. That's the appropriate procedure, and we'll utilize that here in this case.
MR. BERNICK: Fine.
MR. CIRESI: May we have the page.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

MR. BERNICK: 531.
A. Can you give me a couple more pages? You know, there -- there -- my deposition was two days long and there were about 700 pages of -- actually probably 1200 of this kind of page.



You want to take these back? You can have those.
So is this all my deposition?
Q. Those are the two volumes of your deposition, yes.
A. Okay. I'll just make some more room.
So page 531 is in this volume. Okay.
Q. Have you found the place in the deposition?
A. Yeah.
Q. Okay. In your deposition at page 531, do you recall being asked this question and giving this answer.
"Question: Is it your contention that the introduction of low tar products was just a ploy by the tobacco industry to offer smokers health reassurance?"
And your answer was: "I think it was in part response -- in part in response to what was beginning to become common knowledge amongst the scientific community that cigarette smoking caused lung cancer, heart disease and emphysema, and I think it was in response to that to try to figure out a way to overcome those health concerns. So I think that's the origin of it, because those things happened in the '50s and '60s, and the first thing that happened,



of course, was putting filters on them. Putting filters on the cigarette was kind of the first move to, quote, health reassurance, close quote, sort of mode. When the low tar/low nicotine cigarette technology was invented or introduced, if you will, that fed into it. I think it was in response to the concerns being expressed by the public health community."
Was that your answer when your deposition was given?
A. That's what it says.
Q. Okay. Now when these products were introduced, isn't it a fact that the public health authorities also took a position with regard to what consumers should do?
A. I'm not following your question.
Q. Public health authorities, people like the American Cancer Society, did the American Cancer Society make recommendations to consumers regarding low delivery products?
A. They could have, but I -- I would not -- I don't -- I don't recall what those were.
Q. Don't you recall --
A. I don't know what they recommended. I know the American Cancer Society very early on was encouraging

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

people to stop smoking altogether.
Q. Do you recall that the American Cancer Society actually took out ads, Dr. Hurt, saying if you do not smoke cigarettes, you should switch to low tar? Words to that effect.
A. What year -- what year was that?
Q. 1976.
A. If they did, I think they were wrong, because your companies knew a long time before then --
MR. BERNICK: Your Honor --
A. -- that people compensated.
MR. BERNICK: Your Honor, I object to this. I asked him a simple factual question.
THE COURT: It is non-responsive.
A. Could I see the ad? Because I don't recall seeing an ad exactly like that.
Q. Show you AZ82222, volume one, tab three. Why don't you take a look at volume one, tab three.
A. Which tab?
Q. Volume one, tab three.
See that ad?
MR. CIRESI: I don't have it yet.
MR. BERNICK: I'm sorry.
MR. CIRESI: Go ahead, proceed, Your Honor.
Q. Are you familiar with ads like that, Dr. Hurt?



A. I can't --
I guess I can't recall seeing one exactly like this, no. I don't know what the distribution was, what -- where it went.
Q. Do you recall that in the -- one of the exhibits that was shown to the jury as part of your direct examination, this is plaintiffs' Exhibit 1189, the BATCo document dated June of 1978?
A. I can't read that. Can you focus it?
Q. I'll focus it for you. There you go.
Do you see that even at that time the tobacco companies were cognizant, they knew of the fact that smokers are advised by health authorities to smoke brands with lower deliveries if they cannot give up smoking altogether? That's what was going on in the mid-1970s; wasn't it?
MR. CIRESI: Excuse me, counsel. May we have the page number of the exhibit that he's on?
MR. BERNICK: That is your -- that's page one of your exhibit.
THE COURT: Counsel.
MR. BERNICK: I'm sorry.
THE COURT: Just for the court, too, if you'd --
MR. BERNICK: Okay.



THE COURT: -- refer to the page number, it

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

would be of assistance.
MR. BERNICK: I'm sorry. It's page one of Exhibit 1189, Your Honor.
BY MR. BERNICK:
Q. That's what was going on in the mid-1970s; wasn't it? People were being encouraged by the American Cancer Society and other public health authorities to quit, but if you can't quit, use a lower delivery cigarette; right?
A. That's what this --
I don't know where this article was or this advertisement was. It just says it was distributed by the American Cancer Society. So I don't -- it's one page.
Where was it? I don't have any idea where it was. Was it in a newspaper? Is this a newspaper ad?
Q. When you saw the sentence in the document that you read internally, "Smokers are advised by health authorities to smoke brands with lower deliveries," when you saw that in connection with your work on this case, did you ask somebody whether that was true?
A. Oh, I -- I recognize that -- that there are some physicians, even, back in those days that recommended



this, but they were wrong. But -- so if this --
If this is something that was in the newspapers, then -- then I -- I guess I didn't see it when it was in the newspapers.
Q. You were a smoker back at this time; right?
A. What's the date on that?
Q. What was the --
This is 1978. What -- you had quit for three years.
A. Correct.
Q. Right.
When you were a smoker, didn't you recall the American Cancer Society, the American Lung Association, taking those positions, or other health authorities?
A. You know, that's what I said all day yesterday. When a smoker is dependent on a subject -- on a substance, you don't pay attention to these things that are around you. I went through medical school as a smoker. I saw lung cancer, heart disease, pathology that was related to smoking, and I continued to smoke because I could rationalize that I would never get that, and I could deny the existence and the connection. So these things may be in the public domain to a certain degree, and this one



wasn't enough to at least get my attention back in those days, but the point is that when a person's dependent on a drug, denial and rationalization take hold.
And so if you ask me the question about what I did in those -- do I recall these things the American

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Cancer Society said? If I heard them, it became part of the denial mechanism that I used to continue to use a product that might cause me to die.
Q. Dr. Hurt, let's assume that public health authorities, as you've indicated, were saying, gee, maybe we should go to lower delivery. Certain of them were.
A. Yes.
Q. Let's also assume that they were telling consumers the same thing.
Isn't it a fact that what the companies did in making lower delivery cigarettes was indeed responsive to both public health authorities and what the public health authorities were telling consumers?
A. That's a long question and asks me for a lot of conclusions. I -- I -- I guess --
Can you rephrase -- or restate the question, because it was a very long question.
Q. Let me -- let me get to it this way.



A. Okay.
Q. Let me -- let me just deal with the ads for a minute.
A. Which ads?
Q. The ads that you talked about yesterday.
There were ads that you talked about dealing with lower delivery cigarettes; correct?
A. Uh-huh. There were some of those, yes.
Q. And you said that those ads were deceptive to consumers because in fact you can compensate; correct?
A. What I said was that those ads were deceptive to consumers because they fed into the rationalization and denial of the individual. They had to do with some compensation, but they made it out to be that these were safer cigarettes. And --
Q. Okay.
A. -- that's -- that's what they said. So that feeds into what -- the person who's a smoker. They assume, the smoker assumes that something has been done to the cigarettes to make it safer, to make it safer for their own well-being, and therefore they -- then that allows -- that endorses their continued use of the product.
Even though they may have heard that it causes



hundreds of thousands of deaths, that still integrates into their mind as a rationalization to continue to smoke.
Q. Let me ask you three things about those ads. Three.
Number one, isn't it true that the FTC has had the power and jurisdiction to regulate tobacco company ads since the 1950s, to make sure that they don't contain improper health claims?
MR. CIRESI: Objection, calls for a legal conclusion. Gets into the regulatory process, Your

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Honor.
THE COURT: Sustained.
BY MR. BERNICK:
Q. Isn't it a fact, Dr. Hurt, that since the early 1950s, there have been regulations governing advertising and health claims with regard to cigarettes?
MR. CIRESI: Same objection, Your Honor.
THE COURT: No, you can answer that question.
A. What I recall is that when the issue of labeling cigarettes with the yield and with the health warnings, I recall that there was a virtual firestorm created by the industry objecting to doing that, to



putting the labels on cigarettes that said that they might be hazardous to your health. Now if that's regulation -- I mean the industry fought that tooth and nail.
Same thing's true with advertising on television. Those --
MR. BERNCICK: Your Honor --
A. Those issues as far as regulation are concerned were --
MR. BERNICK: Your Honor, this is totally non-responsive and I move to strike. I asked him a simple question which was regulation on health claims in the early 1950s.
THE COURT: Well, I'm not sure the question is quite that simple. Maybe you should rephrase the question.
BY MR. BERNICK:
Q. Isn't it a fact that since the early 1950s, regulations, federal regulations have been issued regarding making health claims with regard to cigarettes?
A. There have been regulations.
Q. Okay. Isn't it a fact that since that time there has -- there has been scrutiny of all of the tobacco company ads by the FTC pursuant to that



regulation?
MR. CIRESI: Objection, Your Honor, calls for a legal conclusion with regard --
MR. BERNICK: It's a fact.
MR. CIRESI: -- to regulatory -- excuse me, I'm sorry.
THE COURT: Counsel, please do not interrupt each other.
MR. CIRESI: Calls for a legal conclusion on the regulatory process.
THE COURT: Sustained.
BY MR. BERNICK:
Q. Isn't it a fact as a historical matter, Dr. Hurt, that the F -- let me -- let me take a step back.
In your professional background, did you have

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

expertise in the fields of advertising and marketing? Do you hold yourself out as an expert in advertising and marketing?
A. No. I'm a consumer, and that's -- I guess that's --
The ultimate expert in marketing is the consumer.
Q. And --
A. That's what I think.





A. -- isn't it true that since the early 1950s, experts acting on behalf of the United States government in fact have reviewed advertisements that have been issued by the tobacco companies regarding their products?
MR. CIRESI: Objection, Your Honor. Calls for a conclusion. Outside the scope of the examination.
MR. BERNICK: Your Honor, it's -- I believe --
THE COURT: Counsel.
MR. BERNICK: I'm sorry.
THE COURT: You may answer that if you know.
A. So repeat the question.
Q. Isn't it a fact that since the early 1950s, experts acting on behalf of the United States government have reviewed tobacco company ads for their content regarding health claims?
A. It could be. I mean I guess I don't know that for sure, but sounds reasonable.
Q. Okay. Including the ads that you displayed to the jury yesterday; correct?
A. I don't know that there were experts who reviewed it, but it sounds reasonable. That -- that





sounds like that would be the process that I would think, yes.
Q. And in fact, every one of those ads also contain the warning that's been required by Congress, the Surgeon General's warning required by Congress; true?
A. The ads we saw yesterday included that, yes.
Q. Is it also true --
A. So those -- those were required by Congress. That was -- they were mandated by Congress.
Q. Right.
A. Not the Surgeon General.
Q. Surgeon General's warning as mandated by Congress; true?
A. Right.
Q. Appears on every single one of those ads; correct?
A. Right.
Q. Is it also true that from time to time, where ads have not been satisfactory to those experts, that the Federal Trade Commission has in fact initiated enforcement actions regarding advertisements issued

http://legacy.library.ucsf.edu/tid/xqn05a00/pdf
Source: https://www.industrydocuments.ucsf.edu/docs/zzhd0001

by the tobacco industry?
MR. CIRESI: Your Honor, I'm going to object to that as irrelevant and immaterial and outside the scope of the expertise of this witness.



THE COURT: I think we're getting well beyond his expertise in that area, counsel.
MR. BERNICK: I agree with that, Your Honor.
BY MR. BERNICK:
Q. Now that was the first question that I wanted to ask you, was about the FTC.
Second question I wanted to ask you is about compensation.
THE COURT: Counsel, before we go into the next data, maybe we should recess for lunch.
MR. BERNICK: Fine with me.
THE COURT: Okay. We'll recess, reconvene at 1:30.
(Recess taken.)



AFTERNOON SESSION.
THE CLERK: All rise. Court is again in session.
(Jury enters the courtroom.)
THE CLERK: Please be seated.
MR. BERNICK: Thank you.
Good afternoon.
BY MR. BERNICK:
Q. Good afternoon, Dr. Hurt.
A. Hi.
Q. I think where we broke off this morning, we were talking about the testimony that you offered concerning the low delivery product, and particularly concerning the ads. Do you recall that?
A. Yes.
Q. And I think where we broke off, we'd been talking about FTC activities in connection with advertising over the years, and then I promised a number two which related to compensation.
A. Okay.
Q. Isn't it true that as the years have gone by, research concerning compensation has continued?
A. It has.
Q. Okay. And indeed, people like Dr. Henningfield -- do you --



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Is Dr. Henningfield a name that's familiar to you?
A. Yes, it is.
Q. He's one of the authors of the 1988 Surgeon General's report; correct?
A. I believe that's correct, yes.
Q. He's one of the best-known authorities in the field of nicotine addiction; correct?
A. He is very good.
Q. Another name is Dr. Benowitz; right?
A. Yes.
Q. And is it true that both Dr. Benowitz and Dr. Henningfield and Dr. Russell from England have continued to focus on this issue of compensation over the years?
A. Well they've focused on the whole issue of nicotine delivery and nicotine blood levels and those sorts of things. Compensation is one part of that, but it's really broader than just that.
Q. Okay. But they certainly have written articles and focused on compensation specifically; correct?
A. They've written articles about that.
Q. Okay. Now even before recent times, when the compensation issue was still developing, isn't it true that researchers who were looking at





compensation were finding that it might not be complete? Do you recall those articles?
A. I can recall some articles like that, but I can't tell you which ones. And if you've got one, we can look at it and talk about it.
Q. Okay. Well maybe I'll do that in a moment. But let's get into and explain a little bit the concept of incomplete compensation.
What would "incomplete compensation" mean?
A. Well, it would be a cigarette that was designed with so many ventilation holes, for example, that regardless of how hard the person puffed on it and how deeply they inhaled and how much they tried, they could not extract enough of the nicotine from the cigarette in order to reach the levels that they usually would have had with a higher delivery product. An example would be Carlton or the ultra low tar/ultra low nicotine delivery systems, and it's just very, very difficult to completely compensate when you have that much ventilation and the other things that are done to those cigarettes. That's what incomplete compensation would be.
Q. Incomplete compensation is where the smoker may try to get more, but in fact does not get as much as he or she used to get from their old cigarette;





correct?
A. Yeah. I think that's what I just said.

http://legacy.library.ucsf.edu/tid/xqn05a00/pdf
Source: https://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. And isn't it true that even as of 1979, articles were being published showing that compensation is only about two-thirds of the former levels; that is, that the effect of switching down is that in fact you do switch down by a third of your former level.
A. I would have to see what you're referring to, because I don't know what you're referring to.
Q. Why don't you take a look at volume one, tab 35.
MR. CIRESI: May we have the exhibit number, Your Honor?
MR. BERNICK: Yes, it's Exhibit GK354.
A. 35? 35?
Q. Volume one, tab 35, yes.
A. Okay.
Q. Okay. Do you see that's an article about -- that deals with the issue of compensation, self-titration?
A. The title is "Self-Titration by Cigarette Smokers."
Q. This is another article that was written by Dr. Ashton and published; correct?
A. Yes. It was Dr. Heather Ashton, but it doesn't say who were the sponsors of the research, so I



guess --
They usually put that down at the bottom of the page. It's from the Clinical Psychopharmacology Unit, Clinic of Pharmacology, University of Newcastle. Doesn't mention the funding source that I can see.
Q. If you take a look at the back -- at the last page, I think the acknowledgment appears at the last paragraph.
A. Yes, The Tobacco Research Council and generous financial help.
Q. So this is more research that was published with tobacco industry sponsorship?
A. Correct.
Q. Okay.
A. That's what it says, yes.
Q. And it's published in the British Medical Journal. That's, again, I think you mentioned this morning, a peer review publication?
A. Yes, it is.
Q. And a fairly prestigious one; is it not?
A. We kind of tend to think about peer review journals and levels, and this would probably be in the second level of that.
Q. Okay. And do you see -- if you want to just



take a look at the summary and conclusions, the conclusion is reached about whether compensation is complete or not?
A. Well you know, if I've read this article before, I'm not sure when it was, and so if I'm really going to comment about it, I need to take some time to look at it. I don't think this is one identified in my

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

expert report as being something I reviewed for my expert testimony.
Q. Can you identify any study or any research that you are familiar with and can testify to, you know, a particular study regarding incomplete or partial compensation?
A. I think there was one by Benowitz, maybe, and one by Henningfied.
Q. Well let me get to Benowitz, then, because -- then maybe to shorten things up here, let's go to 1994.
Are you familiar with the article that Dr. Benowitz published in 1994 on this subject?
A. He publishes about 10 or 15 articles a year, and I -- if there was one in 1994, I couldn't recall exactly what it is. But maybe you've got it for me.
Q. Well do you recall the article -- or the position that he has now taken, Dr. Benowitz has now



taken a position together with Dr. Henningfield on compensation, have they not?
A. There has been a proposal, I think, that's been written up in the New England Journal of Medicine about what Dr. Benowitz -- Benowitz and Henningfied have said, yes.
Q. Okay. Why don't you tell the jury what that proposal is. It's a proposal by Dr. Benowitz and Dr. Henningfield in the New England Journal of medicine, 1994; correct?
A. I can't remember the year. It's about right. It's in -- it's in the 1990s.
The proposal really has to do with threshold nicotine, and unlike the cigarettes that are produced by the tobacco companies which, in the words of one of the documents, cheat the smoker because they kind of tell the smoker that they're going to lower the levels of delivery in the tar and nicotine, but that's not what happens because compensation occurs, so in their words I think they said cheat the smoker, and that's not my words, those are theirs. So the proposal by Benowitz and Henningfied is to reduce the absolute level of nicotine in the cigarettes to a threshold below which a person does not become dependent if a person begins to smoke.



So if a child or -- or one of your kids begins to smoke a cigarette and they experiment with it, the nicotine level that would be in the cigarette itself would be so low that they would not get -- not get the high spikes of nicotine that they do from regular cigarettes. And the threshold that they talk about matches up very closely with the threshold that are contained in a lot of the documents about .1 milligrams to .2 milligrams of nicotine in the cigarettes.
Q. And in order to be able to make that proposal, isn't it true that Dr. Benowitz and Dr. Henningfield

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

have concluded that compensation -- or compensatory oversmoking is a temporary phenomenon and does not persist? Isn't that their current view of compensation?
A. I'd have to look at the document that you have.
Q. Well in order for their threshold proposal to work, compensation would have to be temporary --
A. We're talking about beginning smokers in this issue. The issue is getting smokers addicted, getting smokers hooked. Determining the minimum amount of nicotine to get a smoker hooked is kind of a paraphrase of one of the other internal documents, or how low can you go, how low is the nicotine level




that you can go to before you get a smoker hooked? We're talking about the -- on the one end of this proposal we're talking about people who are not smokers and how much would be delivered in the cigarette, and that doesn't have anything to do with compensation. That really has to do with beginning smokers and what they would receive out of a cigarette.
Q. So in your view, Dr. Benowitz and Henningfied in their proposal haven't spoken to the issue of compensation?
A. Well I'd have to see what you're referring to in your hand. They've written a --
Henningfied and Benowitz are very prolific writers, they write a lot of articles, and I don't know exactly what you're referring to. What I've heard them speak to is just what I explained to the jury, which is there is a threshold, we don't know exactly what it is, it's theoretical, but in the .1 to .2 milligrams of nicotine per cigarette, and that's basically what your own internal documents have said. So --
But I'd have to look at the article that you're talking about to know in they discussed compensation in that.




Q. Just today's science, what is the state of today's science on the issue of compensation? Does it persist or not?
A. The patients that I see continue to compensate as they go to a low tar/low nicotine cigarette, unless they fatigue of that, which happens very regularly, and they then go back to their other forms of -- of delivery, to the higher delivery products. And there's a lot of transition between -- and there's a lot of difference between their products. All their products aren't the same.
Q. Could you tell us the state of research science, that is, people not just looking at their patient population, but doing actual research on the subject, can you tell us the state of science for research on the issue of compensation?
A. Well you know, that's -- that's interesting

http://legacy.library.ucsf.edu/tid/xqn05a00/pdf
Source: https://www.industrydocuments.ucsf.edu/docs/zzhd0001

because I consider the laboratory that I work in to be the community. I consider the laboratory that I work in to be my patients. My patients are more instructive to me about things like this than sometimes the scientific articles are. I rely on my patients to help me understand what it is that's going on with them.

And they do just what I described to you. They



sometimes will smoke lower tar/lower nicotine cigarettes for a period of time before they then go back to a higher delivery product. A lot of them stay at -- at these levels for a long time. I think the woman that I described yesterday who smoked four packs a day, had a cotinine level of almost eleven hundred, was smoking a low tar product. So she was compensating because she had such high levels in her bloodstream.

Q. Do you give your patients the benefit of having reviewed the scientific literature on research that exists today on compensation?

A. Absolutely.

Q. Okay.

A. But they don't read that literature. They read what's in the public press and what's -- what's known out there. And -- and some of the things we're talking about today, though they may be published in places like the British Medical Journal, --

MR. BERNICK: Your Honor --

A. -- that's not on the reading --

MR. BERNICK: Your Honor, it's not --

A. -- list of most of my patients.

MR. BERNICK: -- responsive again. Your Honor, I object, that's not responsive.



THE COURT: Well I wasn't able to hear his answer, counsel, because you interrupted it.

MR. BERNICK: I apologize.

THE COURT: So I'm not sure if it was responsive for not.

THE COURT: I'll have to let it stand.

MR. BERNICK: I'm sorry, I will put the question again. I apologize.

BY MR. BERNICK:

Q. Can you tell us today what the state of science is in the publications that are out there, or have you not read them in order to be able to offer that as an expert opinion?

A. I have read a lot of articles about compensation, but I don't know that I've read all of them. This is voluminous -- voluminous literature, so if you got some examples, I'd be glad to look at them and tell you what I think about them.

There are differing opinions as far as this is concerned because that's the way science is. It continues to advance as we go along.

Q. Take a look at volume one, tab 17.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. Seventeen?
Q. Yes.
A. Okay.



MR. CIRESI: Again, counsel, may we have the exhibit number?
MR. BERNICK: Yes. GK16. Sorry.
Q. Is that the proposal, Dr. Hurt?
A. This is the proposal establishing a nicotine threshold for addiction, published in July 14, 1994. Neal Benowitz and Jack Henningfied.
Q. Right. And was that the proposal that you referred to in your prior testimony?
A. Yes.
Q. Okay. And I think you've already told us that Drs. Benowitz and Henningfied are recognized authorities in their field and are reliable authorities -- reliable authorities on the issue of addiction?
A. They are. Unfortunately, they don't have the benefit of having looked at all of what I've looked at for the last two years of the internal documents that I've looked at with regard to this issue or with regard to the issue of pH manipulation. So those articles are in your literature in your documents, and I don't know that either one of those individuals had access to those because they were all marked private and confidential.
Q. I just asked you whether they are authorities in



their field. Are they not?
A. They are.
MR. BERNICK: Okay. We would offer this exhibit, Your Honor --
MR. CIRESI: No objection.
MR. BERNICK: -- as a learned treatise. Sorry.
MR. CIRESI: No objection under 803(18), Your Honor.
THE COURT: Then that will be received in evidence.
BY MR. BERNICK:
Q. If you'd turn, Dr. Hurt, to the last page, page 125, do you see where it is that -- where's the power on this thing?
Do you see where it is that the two authors refer to overcompensation? In fact, I think if you go to the sentence above that where it begins "Switching...." Do you see where it says, "Switching from higher-yield to lower-yield cigarettes has been shown to result in smoking more cigarettes or smoking more intensively, both of which are associated with increased exposure to carbon monoxide and other toxins."
That would be compensation; correct? Dr. Hurt?



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. That would be -- that would be taking more in, yes.
Q. Okay. But they go on to say, "Over-compensation, i.e., inhaling more smoke from low-nicotine cigarettes than from higher-yield brands, appears, however, to persist only for days or weeks. In long-term studies of carbon monoxide exposure after subjects switched to low-yield cigarettes, compensatory smoking -- oversmoking appears not to persist."
Isn't that the current view of Dr. Henningfield and Dr. Benowitz?
A. The two articles they cite actually are -- are from the published literature, from Gayette and Russell.
When you write an article like this, you cite those observations by other people, that's -- that's the way -- that's the context in which those -- so those are from citations -- I think they're from citations 20 and 21, which are Gayette and Russell.
Q. And if that's --
A. So they're attributed to those two -- two articles, and neither one of them have to do with Benowitz or Henningfied except that they included it in their -- in their article.


Q. Oh, I see. So by including -- by Benowitz including this quotation or these citations and this proposition in their article, there's nothing about that that constitutes an endorsement or approval of that finding?
A. No. This is a -- this is a medical report, and when you -- when you have a medical report, you want to be as inclusive as you can, and so this is a citation of other people's work.
Q. I see. So you don't think that Benowitz and Henningfield have endorsed this proposition, endorsed this research by putting it into their proposal.
A. They cited it, yes.
Q. Okay.
A. They cited it. And I -- I've never asked them if they endorsed it. But the citing is an important part of the process.
Q. Okay. Now if they're correct, Dr. Hurt, if they're correct that compensation does not persist over the long term, if they're correct in that, isn't it true that tar deliveries -- that the relative deliveries of high, medium and low tar cigarettes, that those relative deliveries are in fact in that order; that is, high, medium and low?
A. Yeah. If a person doesn't compensate, those


would be the deliveries, yes.
Q. Okay. And if that's true; that is, if this proposition as set forth in the article is correct
http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

and compensation doesn't persist, isn't the net effect thyat the smoker who's smoking a medium delivery cigarette doesn't get as much tar as the high delivery cigarette, and the person smoking the low delivery cigarette gets the lowest of all? Again if the proposition is true.
A. If they don't compensate, yeah.
Q. Okay. Now I want to turn to the third proposition here, which is risk, ultimately what happens to the smoker who is smoking a lower delivery cigarette.
I heard you to say that in your view there has been no change in the risk associated with smoking lower delivery cigarettes; that is, people who smoke lower delivery cigarettes are at the same health risk as people who smoke higher delivery cigarettes. Is that your testimony?
A. I think there is a -- there's a lot of evidence to speak of that, though there still is a lot of work to be done. And again, smokers are really different from one individual to another and they don't all smoke the cigarettes the same way. So to generalize



would be -- would be difficult to do. So there --
People are different.
Q. Would you agree with the following --
Would you agree with the proposition -- let me just put it this way -- would you agree with the proposition that smokers of filter cigarettes, in comparison with smokers of non-filter cigarettes, have an approximately 20 percent lower risk of lung cancer, although the absolute risk remains substantially above that for never smokers, 20 percent less, would you agree with that?
A. I'd have to see what you're reading from. You're obviously reading from a document of some sort, so if you'll show it to me, I'll be happy to comment on it.
Q. I'm reading from -- well I'm reading from an expert report from another plaintiffs' expert in this this case. I'm just asking you as a general proposition --
Are you familiar with what the other experts in this case have said about this issue?
A. Not to that detail, no.
Q. Okay. Have you -- have you familiarized yourself at least with the views of the state's own epidemiologist in this case on whether low delivery



cigarettes are also lower in risk? Have you done that?
MR. CIRESI: Objection, calls for the witness to characterize the as-yet testimony of another person.
THE COURT: Sustained.
MR. BERNICK: I'll rephrase my question then.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

BY MR. BERNICK:
Q. When you prepared to testify in this case and testify in particular that you didn't believe that lower delivery cigarettes really resulted in lower risk, did you take the step of asking the other experts for the state what they felt about that issue? Did you take that step?
MR. CIRESI: Same objection, Your Honor. It asks for a characterization of other experts or other testimony.
THE COURT: Sustained.
MR. BERNICK: It goes --
BY MR. BERNICK:
Q. Have you reviewed the epidemiological --
What's the field of epidemiology, Dr. Hurt?
A. It's the study of populations, population-based science.



Q. Have you taken a look at the literature, the research articles that exist in the field of epidemiology, field of risk, to determine whether in fact there is a reduced risk from lower delivery cigarettes? Have you done that?
A. I do recall one thing, and it's actually from the documents, which said that -- and Dr. Wynder said there was -- if you lower the tar or lower the nicotine, that there would be a 50 percent reduction in lung cancer rates. And that didn't happen. He was wrong about that. And there was other people in the documents that said the same thing.
That was a long time ago when this was all beginning to happen. But that did not occur for sure. And the lung cancer death rates for women continues to go up.
MR. BERNICK: Your Honor, I would move to strike that as being non-responsive.
THE COURT: I'll let the answer stand.
Q. My question was specifically directed not to what Dr. Wynder said decades ago, but to the current state of the scientific literature on this issue.
THE COURT: Counsel, just state --
If you have another question, state your question.



MR. BERNICK: I will do that.
BY MR. BERNICK:
Q. Have you taken a look specifically at what the current scientific literature says on the issue of reduced risk for lower delivery cigarettes? Have you done that?
A. As far as the epidemiologic literature?
Q. Yes.
A. I've looked at a monograph, I think it was prepared by NCI, that was about low tar/low delivery cigarettes, but I couldn't tell you in that, about that particular issue, if it's in there or not. The purple volume.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. I want to turn to another area of research regarding changes of cigarettes on nicotine.
You showed us a series of documents occurring kind of in this time period relating to -- internal documents relating to the effect of pH on nicotine delivery. Do you remember that?
A. There were documents like that. I can't -- I don't think I have the time periods quite that way, but that's -- that's fine.
Q. I think almost every -- I think it's Lorillard, and I think that Reynolds had some documents, I think that one of my clients, BATCo, had some documents,



there were a lot of them clustered in this early 1970s time period. Do you recall that?
A. Uh-huh.
Q. And they were all looking for the issue of whether, if you increase pH, what effect that would have on the delivery of nicotine. Remember?
A. I think they were looking to see what effect pH might have on sales. That was one of the other issues.
Q. Right. But to get to the sales, the idea was that you'd have pH, then higher nicotine, then higher sales; right?
A. But Marlboro had all the sales. That's what was the issue.
Q. That was the thing, is that Marlboro was back there, and during this period of time Marlboro's market share was on the rise; right?
A. Right.
Q. Okay. Now there was another thing that happened in the early 1970s, during exactly this period of time, Dr. Hurt, in the area of what the public health authorities were saying about pH; correct?
A. Yes, there were.
Q. And in fact, isn't it true that during the early to mid-1970s, no less than three different



recommendations were made by people -- scientists in the public health arena that research should be done on the possibility of increasing pH in order to make those low delivery cigarettes a little bit more attractive to consumers; correct?
A. I don't know which three you're talking about. You said there's -- so if you've got them, let's look at them.
Q. Okay. Well do you recall again that the National Cancer Institute, Dr. Gori in 1976 suggested that in order to make low delivery cigarettes more attractive, research should be done about changing pH levels? Do you recall that?
A. I remember seeing Dr. Gori's name, but it would be helpful for me if you were to just show me the documents and we can look at them.
Q. Sure. This would be volume one, tab nine.
MR. CIRESI: Once again, counsel --

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

MR. BERNICK: Oh yeah, I'm sorry, it's GI27. I'm sorry.
BY MR. BERNICK:
Q. Are you familiar with that article, Dr. Hurt?
A. I've seen it and one point, but I couldn't -- it's been -- I don't know when.
Q. Okay. This was published --



Dr. Gori was with the National Cancer Institute at that time; was he not?
A. At that time he was. I think he later on went to work for one of the tobacco companies.
Q. Yes, he had a consulting relationship. But at the time that he wrote this article he was working as part of the National Cancer Institute; was he not?
A. Yes, that's what it says at the bottom.
Q. It says down here deputy director of the Division of -- and I can't read it, "Cancer Cause and Prevention, Director of the Smoking Health Program, National Cancer Institute, National Institute of Health."
Was he in fact a recognized authority during this period of time regarding research on what might prove to be safer cigarettes?
A. Well I really don't know. I wasn't -- wasn't really into this field at that particular time, so --
He's a name that's -- that's -- that's out there, sure.
Q. Okay. Well was he recognized at the time as a -- I mean if you can't say this, tell me, but would you know, was he recognized at the time as a -- an authority in that field? Would this be a publication that would be a reliable source of information



regarding ideas for a safer cigarette design during this period of time?
A. Well I can't tell you whether this publication -- it's in -- it's in Science? Science is a good publication, yes.
Q. Okay.
A. Is that where it is?
Q. I don't know offhand. It's in Science, I believe, yes.
A. Yeah, Science. It's hard to tell.
MR. BERNICK: We would offer it, Your Honor, as a learned treatise.
MR. CIRESI: No foundation.
THE COURT: Court will receive it as an exhibit.
MR. CIRESI: Is that under 803(18), Your Honor?
THE COURT: Yes.
BY MR. BERNICK:
Q. Do you see that this article is an article about a prescription for low-risk cigarettes?
A. That's what it says, "Low-risk Cigarettes, colon, A Prescription."

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. It says underneath "Low-toxicity cigarettes hold a significant promise in the prevention of diseases



related to smoking." Do you see that?
A. Yes.
Q. Do you see, looking a little bit down in the first column, you kind of -- maybe I can focus on this a little bit better -- it says, "Since smoking occupies such a prominent position in the mythology of our daily life, it is unrealistic to expect that a society of non-smokers could be created after a mere 20 years of public education, particularly in the prevailing sociopolitical climate. Historic perspective suggests that many decades may be needed to achieve this goal.

"Until then, it is important to protect those who continue to smoke despite all warnings. Leaving them to their fate is neither humane nor economic, particularly where there is evidence that their risk can be reduced substantially in at least two ways."

It then goes on to talk about two ways in which to do it. One is to remove toxic components selectively. That would be where you take something in particular out of tobacco; right?
A. Yes.
Q. And the second is that the well-established dose/response evidence suggests that the total intake of smoke in the population can be reduced. After an



appropriate time, a reduction in diseases should also occur.

Now what he's referring to there with these two approaches, the first approach would look to take out some particular chemical; right?
A. That's what he says.
Q. And the second approach is to reduce the overall level of smoke; correct?
A. By a filtration device is what it says, that's right.
Q. Okay. So if you have a filter, the amount of smoke and what's ever in it could be reduced; right?
A. That's what he says. But then again, the citation for this, this should also occur as demonstrated for smokers of filter cigarettes, and he cites Wynder, which is another article. And as I said earlier, Wynder had also proposed that low tar/low nicotine cigarettes should produce a 50 percent reduction in lung cancer, and it didn't.
Q. And if you could just focus on my question, my question is whether the second approach is to reduce the overall delivery of smoke. Right?
A. Yes.
Q. Okay. And you can do that by filtration; right?
A. Correct.



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. And you can also do that by changing the airflow to the cigarette; correct?
A. Perhaps, yes.
Q. Okay. Now what he goes ahead and does in this article is to make proposals that really pertain to the second prong; that is, to reduce overall deliveries; right?
A. I would have to really read this for detail if you want to get into that -- that level of detail. I mean you're asking me to make pronouncements on something I haven't read for a long time.
Q. I'll focus you on a particular part of it, the part that deals with nicotine.
A. What page are you on?
Q. It's on the very first page.
Isn't what he proposes --
A. Where is the paragraph that begins? "As a result of this overwhelming pharmacological contribution, nicotine plays a important role...," is that it, or is it nicotine is a dangerous output. Where are you?
Q. This is right here. If you take a look up on the screen --
A. I just want to know where it is on the page that I'm looking -- I want to see what's before and what's





after it.
Q. It's in the right-hand column.
A. Okay.
Q. It's the second full paragraph beginning "Because...."
A. "Because of this overwhelming pharmacologic contribution...."
Q. Right.
A. Okay. I'm with you.
Q. And beginning "Within," if you look up on the screen there, "Within certain value ranges, high levels of nicotine, high smoke pH values, and high ratios of unprotonated or protonated nicotine increase the satiation effect in the smoker, tends to depress the consumption of cigarettes and the depth and frequency of inhalation, and therefore reduce the intake of smoke." Do you see that?
A. I see that.
Q. It goes -- then goes on to say, "Thus it appears that the hazards of cigarettes can be reduced by a simultaneous reduction of tar and its specific carcinogenic activity; by a reduction of carbon monoxide, nitrogen oxides, hydrogen cyanide, acroleins and other undesirable toxic components; and by an adjustment of nicotine levels and protonation





conducive to consumer satiation."
So what he's saying is you can go with reducing the delivery of what we don't like, and then increasing the delivery of nicotine which smokers

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

smoke for, thereby obtaining an overall reduction in what they get in their lungs. Is that the basic idea?
A. I -- I can follow that, yes.
Q. Okay. Show that -- and part of that is that you might increase the nicotine level delivered, another way to do it is by changing pH. That's what he says; right?
A. That's what he says, yes.
Q. So if we want to reduce this all the way to the end, one of the ideas that was put out by Dr. Gori during this period of time was the companies ought to look to boosting pH levels in order to get people to cut down on how much they were smoking; correct?
A. What's the date on this? Nineteen seventy --
Q. 1976.
A. They were already doing that. They were already doing that according to the internal documents. They were already --
You just told me, Philip Morris was already doing that. pH manipulation, 1970, this was



published in 19 --
He's suggesting something that they're already doing. They've -- they've done just exactly what he said.
Q. Well get --
A. Correct?
Q. Dr. Hurt, we'll get to what the companies did in a moment.
A. Okay.
Q. I asked you just a real simple question. Isn't what Dr. -- Dr. Gori is proposing in 1976 is that the companies increase pH in order to reduce the overall levels of smoke consumption? Isn't that what he's doing?
A. If you increase the pH, you increase the delivery of unbound -- unbound nicotine, which increases the levels to the brain just like we discussed. But they were already doing that a long time before this article was written. I mean --
MR. BERNICK: Your Honor, I think I just asked a real simple question. I think I asked it twice. I don't think I got an answer.
THE COURT: Well I think you got an answer, but probably more than you expected.
Try -- try to just answer the question, if you



could, Dr. Hurt.
THE WITNESS: Okay.
BY MR. BERNICK:
Q. Was Dr. Gori proposing in 1976, as a matter of a public health idea, increasing the pH of smoke, thereby increasing the nicotine?
A. I'd have to look at his conclusion. This is an article, this -- this one paragraph in this article talks about that, and he cites other people who have

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

written about this. So if we can turn to the conclusions, then maybe I can find that.

I have just quickly scanned a one, two, three paragraphs of the conclusion, and I don't see pH mentioned. Maybe you can --

Q. Well --

A. -- tell me --

Q. -- he mentioned pH right here. He says, "Thus it appears that the hazards can be reduced by," and he identifies changing protonation; correct?

A. Well he identifies that as -- and he also cites the other articles where --

This is in the -- the introduction to the article, and when -- when I write an article and when the scientists write articles that you want the -- the first place you look is the discussion and



conclusions as far as what was being recommended. All of this is information that's necessary to get to those conclusions, but in the summary, I don't -- maybe he did, but I don't see here that he made any recommendation to the public health community to do what's on page 1243. There's no mention of pH in those last paragraphs.

Q. So because it's not in the last paragraphs, that's not a suggestion that's there on the screen for people to follow up on?

A. Well it could be, but --

MR. CIRESI: Your Honor, objection.

A. -- this is --

MR. CIRESI: Excuse me, doctor. I'm going to object to that as argumentative, Your Honor.

THE COURT: It's becoming argumentative, counsel.

BY MR. BERNICK:

Q. The Tobacco Working Group, did the Tobacco Working Group work on exactly the same issue, Dr. Hurt?

A. Could be.

Q. Do you know?

A. I know that they focused on a lot of issues trying to develop a safer cigarette because they were



concerned about the deaths that were being caused by the cigarettes. And they tried a lot of different things.

Q. Do you know if they focused on the issue of pH and made the same observations?

A. I guess I do not know that personally.

Q. Do you know about the suggestions in the publications that were made by the Institute of Cancer Research in England on the same subject?

A. When would that have been?

Q. 1972.

A. I have seen reference to that, but I couldn't -- again, couldn't cite you chapter and verse.

Q. Now as we go forward in time, you read the

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

internal documents that are in the 1970s, we know that Marlboro is out there doing real well, and we've just seen some references to the idea of pH from a public health point of view; correct?
A. Which recommendations?
Q. We've seen references to the idea of changing pH from a public health point of view; correct?
A. This is an article written in Science, and I -- this is -- this is a series of articles. The literature is vast, and so these are -- so that one paragraph in the page -- you know, three-page article



does not become a recommendation to the public health community, it becomes a paragraph in an article.
The recommendations, if there were to be recommendations to be made, would usually be in the summary at the end. "I would recommend to the public health community that we do this, this and this." That's -- that's the way you write articles if you really want to make the point.
Q. Would you be more comfortable if I said, instead of "recommendations," if I said "idea" or "suggestion," would that make you feel more comfortable?
A. Well sure, but then we'd have to go back and look at all the suggestions in this article.
Q. Okay.
A. There's a lot more to it.
Q. Let's go forward in time.
A. Okay.
Q. You read some internal memos that talked about having ammonia, and you made reference to the sales dimension of adding ammonia. Is it your testimony that in fact the tobacco companies boosted pH, boosted pH by adding ammonia?
A. I think that was one of the -- one of the methods that were used. There were a lot of



different things that were talked about in the documents on how this might be done. One of the other experts in the -- in this case, I think, is going to address exactly how they did that in the chemical sense and how that then became the commercial cigarettes.
Q. I guess my question is: Are you testifying as an expert that that actually occurred in commercial cigarettes; that is, that ammonia was added and resulted in boosting pH for actual commercial cigarettes? Are you offering that testimony?
A. What I've seen in the documents would say that ammonia was added to raise the pH in the cigarettes. The other companies were -- you just said yourself, the other companies were trying to figure out what Marlboro had done. They found out that Marlboro had added ammonia to cigarettes, and they were the ones, RJR, Lorillard, B&W -- I think that's the company that you represent -- did that. And they said that

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

in their internal -- internal documents.
So I mean I -- I guess I have to assume that they knew through their industrial espionage, if you want to talk about it that way, learned that Philip Morris actually did that and -- and then used it as a commercial cigarette.





Q. Okay. Maybe the answer to the question --
I just asked you really factually. Are you testifying that this was actually done, pH levels were boosted using ammonia or not?
MR. CIRESI: Your Honor, it's been asked and answered. He said someone else is testifying.
THE COURT: It's been answered.
BY MR. BERNICK:
Q. Can you tell us the brands, Dr. Hurt, where pH was added and had the effect of -- excuse me, ammonia was added and had the effect of boosting nicotine and boosting pH deliveries?
A. Depends on which point of time, which year. I mean the documents would say that Philip Morris did it first with Marlboro, and then as time went on most everyone did. I think there was one exception to one company and I think that was Liggett. I don't think Liggett did that, at least according to some of the internal documents that I've reviewed.
As far as telling you which brands in those groups -- it became an industry-wide phenomenon according to what I've read in your own internal documents except for one company, which was Liggett. And it -- and it started with Philip Morris, and everybody else was trying to figure out why that





occurred, where the ammonia was going, what it was doing, and they theorized and they then acted on that theory that it was the pH manipulation.
Q. Well let's pursue this. You think this happened in fact.
A. Pardon me?
Q. It happened in fact.
A. I think it happened, yes.
Q. Okay. I'd like to show you --
This was a blow-up from an exhibit that was offered in yesterday. This is Plaintiffs' Exhibit 12223, and I think that you mentioned this in your testimony and showed it. Remember this chart?
A. Yes.
Q. Okay. And what I'd like to do is kind of walk through a little bit of what this chart shows. I know it's a little bit busy. I think you mentioned this yourself yesterday.
A. Uh-huh.
Q. But this is a chart that shows on the bottom pH.
A. Uh-huh, yes.
Q. And pH is a -- is a measure of a kind of a chemical environment; correct?
A. It's the measure of the hydrogen ion

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

concentration.



Q. Okay. If we go over to this part of the scale over here, that's the acid side?
A. Correct.
Q. And if you go over here, this is the base side?
A. Yes.
Q. And in the middle, a neutral pH is seven; correct?
A. Seven is neutral. Seven is water.
Q. That would be right -- that would be right here. And so grapefruit juice would be more over on this side?
A. Correct.
Q. And what -- what can we think of that would be easy -- Milk of Magnesia?
A. Lye, lye would be over there.
Q. Okay.
A. L-y-e.
Q. And very strong acids would be over around below one; correct?
A. Hydrochloric acid would be over there, yes. Stomach acid would be over on that side.
Q. What that shows -- it's got some complicating lines. This curve that appears here, this one, maybe I'll kind of go over it in -- ah, what's a good color? How about green.



This curve right here is a curve that appears in the Surgeon General's report itself; correct?
A. Which one?
Q. 1979.
A. Could be.
I can't remember what the date of this document was.
Q. I don't know. Do you know what the name of that curve is?
A. That's the dissociation curve, I mean that's -- that's where the dissociation constant comes from.
Q. But scientists who study the effect of pH on nicotine have a particular name for that curve; do they not?
A. I'm blanking right now.
Q. As a matter of fact, there's a name for that curve that every chemist uses in talk -- talking about that curve; right?
A. I'm just blanking right now.
Q. Henderson Haselbach, does that ring a bell?
A. That's right. That's it.
Q. Okay. And the Henderson Haselbach curve says that if you increase the pH, you will change the chemical form of nicotine; right?
A. Well it's wherever --



http://legacy.library.ucsf.edu/tid/xqn05a00/pdf
Source: https://www.industrydocuments.ucsf.edu/docs/zzhd0001

This is the dissociation constant we talked about yesterday. So at a pH of eight, which is the next line in there, then 50 percent of it would be in the unprotonated form and 50 percent would be the other form.
Q. Okay.
A. So it's -- it's where --
The PKA is what we're talking about.
Q. Okay. And so if we're over on this side it's called free base nicotine because it's on the base side; right?
A. Well actually it begins down below at the bottom of your curve.
Q. I need to include everything --
A. Right, right.
A. -- that's on this side of the curve.
A. That would be the beginning of free base down there.
Q. And everything over like that.
A. That's all free base.
Q. That's all free base. And everything on the other side of the curve is in a bound or salt form; right?
A. Well it would be -- it would have a hydrogen ion attached to it or two, so it's either one or two, and



that's what mono and diprotonated means.
Q. Okay.
A. Salt -- salt would be if you combined it with an acid. Like malic acid plus nicotine would be nicotine maleate.
Q. So under this theory, if we're below, say, six, all of the nicotine is in bound form; right?
A. Nicotine is in equilibrium depending upon where it is. I mean that's what this equation is all about. If you put nicotine into an aerosol or into a liquid, then depending what the pH of the liquid is, then that will determine how much is in a bound form or unbound form.
Q. Right. And if the liquid --
If the environment is at a pH of six, all the nicotine is bound.
A. Well you have to be really careful with it because this is a very compressed curve as far as the percent over here is concerned. It is in equilibrium, so it's not a absolute -- looks like on this one, on the bottom of this curve where you're pointing to, if you're pointing to this area right here, --
Q. Yeah.
A. -- if you were to really blow that up, you



would -- there would be some that would be in free base form as well as in the other form, but it would be very small amounts.
Q. Very, very, very small quantities.
A. Well I think one of the documents yesterday said

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

that at a pH of 5.2, free base nicotine was .22, but if you go from 5.2 to 6.2, then that's a ten-fold increase in the concentration so then the nicotine is 2.2. So you have to be really careful when you have -- you have a scale that has a hundred percent going up this way, and you're focusing only on a little inch down here, because that doesn't tell the whole story.
Q. All right. Can you tell me how much free nicotine there is at the pH of six?
A. I would have to look at an equation to do that. And I think there actually were some that we looked at yesterday, but I couldn't calculate it right off the top of my head.
Q. Can you tell me if it's any more than one percent?
A. I think it's less than that, but I -- again, I would have to -- I would have to take a look and see.
Q. And as we go above six, what you testified to is that as you go above six, more and more of the



nicotine will be in free base form; right?
A. The higher the pH, the more free base nicotine, correct.
Q. Okay. Now I think you also said that the free base nicotine is more easily absorbed; right?
A. It is probably the form that goes across the membrane.
Q. Is it also --
A. The more -- the more bound forms have a difficult time going across the membranes.
Q. Now isn't it also true that free base nicotine tastes bad?
A. I think nicotine tastes bad, period, and that's what --
Q. Well I understand that, but have you looked at the literature on harshness or smoke harshness? Have you examined that literature?
A. Well in reference to the documents, I think that one of the documents said if you add more ammonia, you get higher free base nicotine and the taste actually is less harsh. That's what one of the documents said.
Q. Oh, really?
A. Yes.
Q. I see.



A. I recall one like that.
Q. Do you know what the truth of the matter is? Do you know -- do you know --
A. Nicotine tastes bad. And that's the other thing that your documents say, that -- that nicotine tastes bad, that consumers tell you that nicotine tastes bad, that people tell you that nicotine tastes bad, so this is not a matter of nicotine does not add to the taste because it tastes bad. And I'm not sure that you could say that free base is more bad tasting

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

than nicotine.
Q. You can't?
A. Well it's -- if it's in a liquid, it's never only in one form. I mean you have to understand it's is in equilibrium, so if you put nicotine into a liquid, then it will distribute itself between those forms that are on the board there, depending upon what the pH of the liquid is. If it has a higher pH, it will be more free bound, if it is a lower pH, it will be lower.
Q. Isn't it a fact that upon experiment, smokers who smoked high pH tobacco find it harsh?
A. I think it depends on the smoker. For example, I used to -- used to smoke a pipe when I was kind of a closet cigarette smoker. I can inhale pipe smoke,



and it has a pH probably that's over in the eight range. So it depends on the smoker.
Q. Can you inhale cigar smoke?
A. Not as much as a pipe smoke.
Q. Cigar smoke is all the way over here; right?
A. It's in the pH of eight or so.
Q. Yeah. That's what this says right here.
A. Yup.
Q. From three to four is cigar smoke.
How many people do you know that inhale cigars?
A. Before the current reinvention of the cigar craze, a lot more people inhaled cigar smoke than you might imagine. That's actually a --
They're some of the more difficult patients we have to treat because of this phenomenon, actually. Because if you inhale free base nicotine-based smoke, the levels you get in your brain are extraordinarily high. I mean if you go from a Marlboro cigarette, which is what I used to smoke, to a pipe and inhale the pipe smoke, the lights really go on upstairs.
Q. Isn't it a fact that the Surgeon General reports themselves talk about cigar smoke as being too harsh to inhale?
A. Which ones? Which -- which Surgeon General's reports?



Q. I'm just asking you. Take the 1981 report.
A. If you've got it, we can look at it. I don't recall what the '81 report said about cigars. I didn't -- I didn't -- I don't recall that.
Q. Isn't -- isn't -- hasn't it been known --
Are you familiar with the publications in the 1950s on the effect of adding ammonia, boosting pH, and it being too harsh, the smoke is too harsh?
A. Oh, I remember one of the internal documents that said that that occurs and therefore we're not going to -- we're not going to chase the Marlboro pH issue, and they didn't. And I think their sales reflected that, as a matter of fact.
Q. Okay. So add ammonia, boost pH, too harsh, don't sell it?

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. No. I think that they did not pursue that because they thought that there were some other -- some other problem with adding ammonia. But there are other documents that say add the ammonia, increase the pH and it actually makes the -- it reduces the stemmy taste of the burley or the stemmy taste -- there were several -- several statements in there about how ammonia would attenuate the harshness of the smoke. I mean that's -- that's what it said.
Q. Now ammonia, if you add ammonia and only



ammonia, do you tend to boost the pH?
A. The pH goes up when you add ammonia, yes.
Q. What if you add other things together with the ammonia, what happens to pH?
MR. CIRESI: Your Honor, this is getting outside the scope of his direct.
THE COURT: You can answer it if you know.
A. Well it depends on what you add.
Q. Right.
A. Yeah.
Q. What if you add sugars? What if you add ammonia with a lot of sugars, what happens to the pH?
A. Sugars can be made -- can make the solution for acidic, so it could go down a bit, yes.
Q. So if you add --
If you had a recipe that added ammonia but also added sugar, the effect on pH would depend on how much of each one you're adding; right?
A. Correct.
Q. Now if you go ahead and therefore just look at the fact that ammonia has been added, you don't know what the effect on pH is until you know what else is being added at the same time; true?
A. All I know is what -- and again, this -- this is information that -- that was all very revealing



because of the large amount of information about pH, ammonia, levulinate, maleate, all of the other things that were done to try to manipulate -- manipulate pH. There was a lot of information there. The under -- under -- underlying theme of all this was adding ammonia increases the free base nicotine, and -- and the companies that were looking at that issue were trying to catch Marlboro because Marlboro, they found out, had been adding ammonia, and that what -- what had happened was the pH had gone up when they tested the smoke pH of the -- of the Marlboro cigarettes. And then they did it.
Q. Dr. Hurt, can we get back to my question? If all that you know is that ammonia is being added, you can't tell whether that increases pH until you know what else is in the recipe; correct?
A. Something was increasing the pH.
Q. I'm not -- I'm just asking you whether that's true.
Just because ammonia is added, you can't tell

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

whether that increases pH until you know what else is being added at the same time. True or not?
A. Well if you have other substances that may be acid, then that would neutralize the ammonia, sure.
Q. Okay. Now when it comes to my particular



client, we used ammoniated recon, still do; correct?
A. I think that's correct, yes.
Q. Okay. And isn't it true that our ammoniated recon, Brown & Williamson's ammoniated recon includes not only ammonia, it also includes sugars?
A. Well, you know, I'd have to look at the recipes, if you will, to -- to know that as far as those exact things that you add, and I think each company is different on what they did and how they do it.
Q. Well isn't it a fact that when it comes to our ammoniated recon, the more of it you add, pH goes down, not up; true?
MR. CIRESI: Your Honor, I'm going to object to this as being outside the scope of the direct. He said he wasn't here to testify --
THE COURT: Sustained.
Q. Let me just ask Dr. Hurt, can you sit here -- can you state as an expert today that when Brown & Williamson adds ammonia, it has the effect of increasing pH? "Yes" or "no?"
MR. CIRESI: Your Honor, objection, it's outside the scope of his direct. He talked about the effect --
THE COURT: Sustained.
MR. BERNICK: Did Your Honor rule?



THE COURT: Yes, I did. Sustained.
BY MR. BERNICK:
Q. As part of your expert work on this case, Dr. Hurt, have you gone back and taken a look at the effect on pH of the different brands?
A. Each brand?
Q. Any brand.
A. I have only -- only -- only gone through what I've gone through, which as I've explained are documents from each one of these companies and over a very long period of time, thousands of pages of documents, and pH -- pH manipulation was there in a way that I never dreamed it would be there. This is something that my colleagues do not have the privilege of knowing it because all this stuff is marked confidential. They'll be surprised, just like I was.
Q. Dr. Hurt, you referred --
I'm going to refer you back to Plaintiffs' Exhibit 13155, and I think that you showed some of these charts the other day. This is from Mr. Teague's memo, and I think it's 1973. Remember that one?
A. I remember, but I don't have my documents. Could I have those?

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. Oh. I'm sorry.
A. I don't have any room up here.
Q. If I had another copy, I'd give it to you, but I've just got one that I've taken apart.
A. No, may I have one. It's in my book.
MR. CIRESI: May I approach, Your Honor?
(Document handed to the witness.)
A. What's the number?
Q. 13155. I got page --
It's one of the charts at the back. See that one?
A. Yes.
Q. Okay. And what's --
A. Now what was the date on this?
Q. I think it was 1973.
A. '73, Okay.
Q. Yeah. That's indicated, I think, by some of the attachments to the -- to the thing.
A. So this was before the Gori article.
Q. Yeah. And after the article that was published in Britain, that's correct.
A. Okay.
Q. If you'd take a look --
This one deals with Kool; does it not?
A. Salem, Kool, yes.



Q. Okay. And Salem was made by and is made by Reynolds?
A. R. J. Reynolds, yes.
Q. And Kool is my client's brand; right, Brown & Williamson? I'll tell you --
A. That's one of your clients. You have more than one clients.
Q. One of my client's -- one of my client's, one of their brands. That's right.
A. Yes.
Q. And Reynolds is focused not just on Marlboro, the're kind of antsy about Kool at this point; true?
A. It appears that way, yes.
Q. Because they see that, according to the first chart, Kool sales are going up and Salem sales are stagnating; right?
A. Looks that way.
Q. See that? Salem is going down, Kool is coming up. Right?
A. This is cigarettes sold in billions?
Q. Yes.
A. Like 40 billion of those.
Q. Yes. The sales are going down for Salem and they're going up for Kool; right?
A. Yes.



Q. And what -- what Reynolds finds when they take a

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

look at it is that if you take a look at the pH, this is the pH scale over here, Kool has a higher pH than Salem; right?
A. It looks like both of them are going up.
Q. Yes. But the pH for Kool is higher than for Salem, and that's one of the reasons why Mr. Teague thinks that, well gee, maybe the reason that Kool is doing better in the marketplace is that Kool's got a higher pH; right?
A. I think you have to really be careful when you use a scale like this because there's no zero in this scale. It doesn't go all the way down to zero and it doesn't go up to 14. So the difference between this number and that number on my chart is two-tenths, which is -- is a -- is a sizable difference. But you have to really be careful with that because you don't know where the zero is, as far as -- or even where seven is.
Q. I didn't -- I didn't really ask you about the zero, I just asked you whether Mr. Teague was concerned that the reason that Kools were doing better than Salems was that they were consistently at a somewhat higher pH. Wasn't that the force of what he wrote?



A. I would have to look back to see that's what he wrote. But if I saw this and I was the company of Salem, I guess I would be wondering what was happening to my product, yes, in reference to Kool, yeah.
Q. In point of fact, isn't it true that during this period of time, Kool did not have any ammonia added to it at all?
MR. CIRESI: Your Honor, again I'm going to object, it's outside the scope of his direct. There's another witness to testify on that issue.
MR. BERNICK: Your Honor, the witness has testified to this document specifically, and he has further said that this was all an effort to get sales, and all I'm pointing out --
THE COURT: Counsel, you may ask him about the document, but to ask about what the present ingredients of a particular cigarette, seems to be outside the scope. Move on. Move on.
MR. BERNICK: I'll rephrase -- I'll rephrase the question, Your Honor.
BY MR. BERNICK:
Q. Can you tell from the document, Dr. Hurt, whether Kool had any ammonia added to it?
A. I'd have to read the document.



Q. Now have you seen any documents about what happened to Kool's market share in sales subsequently?
A. If I have. I can't recall.
Q. Let's talk a little bit about Winston. This is the prior page.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. Okay.
Q. And again we see that Reynolds is concerned because Marlboro -- I'm sorry, Winston is faltering and Marlboro is riding into the sunset; right?
A. I might not be on that page. Do you have a Bates number for that?
Q. It's just a page --
I think it's the page before that.
A. I've lost it.
Q. Well, if I can --
A. Too many pages.
MR. BERNICK: Can I approach the witness and maybe --
Q. It's the last couple pages. There you go.
A. Yeah, here it is.
Q. That's the same kind of comparison; is it not?
A. Yeah. Over here it's annual sales in billions, so looks like Marlboro --
Q. Right.



A. -- in 1965 had like 70 billion cigarette sales.
Q. And it shows here that Marlboro is -- is going out, doing great, and Winston is faltering, and again it's pointed out that there's a difference in pH; right?
A. Correct. And this is obviously different and bigger as far as the difference compared to the other document. This goes all the way from 6.0 to almost 6.8.
Q. Do you know if after --
A. Which on this scale would be, you know, well over here.
Q. Do you know if after Reynolds started adding ammoniated materials to Winstons, do you know if it had any effect on helping it catch up to Marlboro?
A. I guess I don't know that for sure. There's other factors that go into -- to selling cigarettes, obviously, and so once Marlboro captured the market, I think it was catch-up for everybody else. So I don't know exactly the dates that those things occurred.
Q. Would it be fair to say, Dr. Hurt, that when it comes to the effect of adding ammonia on sales, beyond what you read in this particular document, would it be fair to say that the effects of adding



ammonia on sales is something that you cannot speak to as an expert?
A. I don't know that I ever said that I was going to speak to that. What I did say was that if you increase the pH, you increase the free base nicotine. If you increase the free base nicotine, you increase the addictive nature of the product.
Q. Let's talk a little bit about --
THE COURT: Counsel.
MR. BERNICK: I'm sorry.
THE COURT: Why don't we take a short

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

recess.
MR. BERNICK: Sure.
(Recess taken.)
THE CLERK: All rise.
(Jury enters the courtroom.)
THE CLERK: Court is again in session. Please be seated.
MR. BERNICK: Thank you, Your Honor.
BY MR. BERNICK:
Q. I'm going to embarrass myself here for a moment. I'll try to draw a picture of a lung, and then the mouth area. And I know it's not right, but I think people can probably guess what I'm doing. I want to understand the steps of the theory that you



articulated to the jury, your testimony on the different steps of how free base nicotineor free nicotine, or bound nicotine for that matter, how nicotine gets absorbed and gets, as you said, so quickly to the brain. I think I've got it down to four steps, and you tell me if I'm wrong.
Number one is that most of the nicotine is absorbed in the lung. Is -- is that a true statement?
A. When you inhale it, yes.
Q. Yeah. I mean really any kind of cigarette, no matter what brand or shape or size, basically commercial cigarettes are mostly absorbed in the lung.
A. That's correct.
Q. Okay.
A. Inhalation does that, yes.
Q. Indeed I think the Surgeon General has said that -- is it 90 percent of nicotine is absorbed in the lung?
A. I don't know which Surgeon General you're talking about, but I've seen information that would say 90 percent or so is absorbed in the lungs.
Q. Can I approach the witness, Your Honor?
This is the '79 report. Down at the bottom.



Right there.
MR. CIRESI: Do we have an exhibit number, Your Honor?
MR. BERNICK: I think it's already in evidence. I -- I don't remember the exhibit number, frankly. I'll try to get it.
MR. CIRESI: Do you know what year it is?
MR. BERNICK: '79.
A. Well, you know, it's -- again, it's -- this is taken in the context of its -- there are three articles that are cited.
Q. Right.
A. And then the second one says it should be noted also the retention of other cigarette smoke components by absorption is approximately 82 to 99 percent, depending on the study.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. Okay.
A. And indicates it's clear that the lung uptake of nicotine in cigarette smoke is very efficient. So yes, that will suffice.
Q. Very good.
So we're talking about the range of about 90 percent then?
A. It's a very high percentage, yes.
Q. The second point that I think you said is that



in order to be absorbed --
It's the deep lung. It's down in these little alveoli?
A. Yes.
Q. In order to be -- for it to be absorbed, it must be free; correct?
A. The free base nicotine, yes. The absorption, yes.
Q. Must be free.
And then the third point that I think you made is that -- this is about absorption. The third point that you made is that once it's absorbed in the deep lung, it kind of -- it's the direct route to it brain; right?
A. It's the shortest route, yes.
Q. And that's because of the blood vessels that serve the lung?
A. Empty back into the left side of the heart and then to the brain.
Q. Goes straight up.
A. Correct.
Q. And would it also be true that if there were absorption of nicotine in the mouth, that that would go more slowly?
A. Correct. And there's probably absorption all



along the way, mouth, upper bronchial tubes and down to the alveoli.
Q. Okay. Now the reason for that is that it's a different route of transport; right?
A. It's transbuckle. Or the inside of the mouth is called a buckle mucosa, so it's going across that membrane, which is thicker than the membrane in the alveoli.
Q. And it's also drained into -- into the jugular vein?
A. Yes, eventually.
Q. And then the jugular vein has got to go through a more circuitous route.
A. Goes into the right side of the heart, then it's pumped to the lungs, and then it's pumped to the left side of the heart.
Q. Okay. So if this is the highway, then this is kind of more the country -- the back road.
A. That's the jet airplane, number three, and that is the car, number four.
Q. Car. Got it.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.tobaccoindustrydocuments.ucsf.edu/docs/zzhd0001

Now I want to examine a couple of those points for a moment. First, I want to take us back to this one, number two; that is, in order to be absorbed it must be free.





A. Uh-huh.
Q. If we go back to our chart here, and if you assume that Marlboro has been -- the smoke pH of Marlboro has been measured and it's about 6.028. Just make that assumption. Just a little bit this side of six. We're talking about very, very small amounts of free nicotine; correct?
A. Uh-huh. Uh-huh. Yes.
Q. Sorry?
A. Yes.
Q. Okay. It would be all the way down here at the bottom --

I understand your testimony a little while ago, you have to be very careful about where that curve actually bottoms.

A. Yeah. The curve nearly meets the line, but it doesn't because it's in equilibrium.
Q. But we're talking about very, very small amounts. Percent or less; right?
A. Right.
Q. Your point about absorption, though, is when that smoke --

Let's assume it comes down at a pH of 6.028. By the time it gets absorbed across the barrier, it's into to a pH environment of 7.4; right?





A. Correct. That's the pH of blood.
Q. Okay. So that that smoke --

That nicotine that's in the smoke will cross the barrier, it will kind of become part of its environment and then its pH moves up, and as it moves up this chart more of it becomes free; correct?

A. Correct. I mean that's -- it's -- it's in equilibrium, so there will be some that will be bound and there will be some that's free.
Q. And isn't it a fact true that if you're at 7.4 on this chart, about here, that the amount of free nicotine that can possibly be created is about 20 percent; true?
A. Well roughly. I mean that's --

You'd have to do the equation, you'd have to do the mathematics, but that's -- according to that chart, that's about right, yes.

Q. Okay. So at 7.4, about 20 percent of the nicotine is now free; correct?
A. Using those numbers, yes.
Q. Now if it's true that 90 percent of the nicotine is absorbed in the lung and only 20 percent of the nicotine is free, don't we know that not only is free nicotine absorbed, but also some bound nicotine?
A. I think it's predominantly free nicotine is



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

being absorbed.
Q. If you let -- go back to my question though.
A. Okay.
Q. Isn't it a fact that if 90 percent of the nicotine that's absorbed in the lung, but only 20 percent of it just as a matter of chemistry is free, that there's a very substantial amount of bound nicotine that also absorbed is in the lung?
A. Once the free nicotine crosses the alveolar capillary membrane, it's free nicotine, it's not bound. Once it enters the bloodstream, then it equilibrates to the new environment. The new environment has a pH of 7.4. So it shifts some of the equation, so that if it was mostly free going in, then some of it becomes bound because at 7.4, 80 percent is bound and 20 percent is free.
Q. So what you're saying, then, is that to get across it's got to be free, and once it gets across, some of it becomes bound again?
A. Sure. That's why you acid/base --
Q. So if you have a pH of 6.028, we would have one percent of the nicotine in the smoke, right, is free, it would then cross the barrier, and then at that point 20 percent -- I'm sorry, 20 percent of that -- actually it's more, it's 80 percent of that would



become bound. Is that what you're saying?
A. It would be buffered by the blood, and the pH of the blood is 7.4, so it assumes the new environment that it goes into, is the pH of 7.4, so then it becomes chemically like its environment.
Q. Okay.
A. So then there is a percentage of free nicotine that is according to what the pH is.
Q. Okay.
A. That's correct.
Q. And if that were true, then in the blood that's now in the bloodstream, 80 percent of one percent is bound, so that means that there's only .2 percent free nicotine; correct?
A. No, it's not correct. I mean you -- you can't continue to do this equation this way because what happens is even though it may be a small percentage in the smoke pH down here, once in the lungs, once one of those free nicotine molecules goes across the alveolar capillary membrane, that frees up another one that used to be bound within the particle who then becomes free. It's in equilibrium, it's not -- this is not a static situation at all. So once off-loaded from the aerosol particle, then another free nicotine, according to what the pH is, --



Q. Sure.
A. -- goes off of the particle into the free state

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

into the circulation.
     It really has to do with the concentration and the speed. A free nicotine crosses the alveolar capillary membrane very quickly, and then it has to do with the concentration of the free nicotine that's in the aerosol to begin with. So if you have a higher concentration, so if it -- if it's 6.02 or -- I think the documents -- the one I can remember the best is 6.2 had 2.22 percent free nicotine compared to 5.2 which had only .22. So the point is that once you begin this gas exchange, once you begin the particle off-loading, then another one comes out to replace it according to what the pH is.
Q. But at any one time, only one percent of the smoke can be getting through, and of that one percent, 80 percent of it becomes bound again; true?
A. That's -- that's what happens in the bloodstream, yes.
Q. Okay. So that on a continuing basis, we have .2 percent of the nicotine being freed and taking that route; correct?
A. I'd have to sit and think about that more. I guess I've never thought about it that way.



     The point is that if you can increase the amount of free nicotine that's available in the aerosol, you have more that's there to cross this membrane to produce a bolus. And the bolus is what goes up. So then if it gets into the -- into the circulation as 20 percent is unbound, it's still 20 percent of a bigger glump, a bigger bolus that went through as free nicotine. And it's the bolus effect that we're talking about because the concentrations are larger if you have a larger amount going across the membrane to begin with.
Q. The bolus that you're talking about, the portion of it that's free nicotine is always at a maximum, at any point in time, .2 percent; correct?
A. It depends on the pH of the aerosol, depends on the pH of the smoke which determines the amount of free nicotine in the smoke.
Q. If you start out with a pH of six, it's only going to end up being .2 percent; would you agree with that?
A. You really can't do it that way, because once you get into the bloodstream, there is -- it is in equilibrium as far as the pH is concerned. But this is a very dynamic situation. It takes a very short period of time to get from in here to the lungs.



We're talking about -- to the brain. We're talking about, you know, a few heart beats. So the -- how quickly it becomes in equilibrium is one of the -- one of the points. So --
     But the bolus effect that occurs occurs because you have more free nicotine in the alveoli to cross the membrane, and anything you can do to make the

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

bolus bigger, regardless of what the pH of the blood is, makes it get into the bloodstream faster, and there's a higher concentration going to the brain.
Q. But at pH of 6.028, given the assumptions that we've gone through here, that bolus is .2 percent of the nicotine that's being absorbed; correct? That's what the numbers say.
A. Well I have to sit down and look at your numbers, because --
Q. Well do -- do some more thinking about it. I'm going to ask another question.
A. I'm just -- I'm not questioning your numbers, I just haven't quite thought about it in that way before.
Q. In fact as a result of precisely this -- these numbers, isn't it true that Dr. Benowitz, again, has concluded that the -- once the tobacco smoke reaches the lung, that the nicotine is absorbed rapidly



regardless of the pH of the smoke? Isn't that what Dr. Benowitz believes, doctor?
A. Well I'd have to look at the article you're referring to.
Q. Take a look at volume one, tab ten.
A. Say again.
Q. Volume one, tab ten. That's Exhibit GI158.
A. Yeah, I've -- I've seen this article before.
Q. Okay. Is this an article again by Dr. Benowitz and is it published in the New England Journal of Medicine, which is one of the top of the top tier of the --
A. It has to be the number one tier, that's right.
Q. Okay. So this would be a pretty reliable source, would it not, for your field?
A. Well considering who Dr. Benowitz is. He's a very good person.
MR. BERNICK: We would offer it, Your Honor.
MR. CIRESI: No --
MR. BERNICK: As a learned treatise.
MR. CIRESI: No objection on that basis, Your Honor.
THE COURT: Court will receive it in evidence.



BY MR. BERNICK:
Q. Do you see at page 1321, it deals with the absorption of smoke in the lung?
A. Twenty-one?
Q. 1321, I'm sorry. It's the one here.
A. Okay.
Q. Do you see where he talks about the effect of pH even at 5.5 pH?
A. Correct. He says the pH of smoke from flue-cured tobacco as found in most cigarettes is acidic, pH 5.5.
Q. Okay. So in that case the smoke is even more

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

bound. At 5.5 down here, there really is nothing there in the way of free nicotine; correct?
A. Well there's some free nicotine. It's always in equilibrium; there's never none. And I guess the other thing I'd say, if you're using Marlboro at 6.028 on this drawing, would indicate to me that -- that that was the biggest seller; correct?
Q. Is what?
A. The biggest seller cigarettes, Marlboro? Is that Marlboro you have there, 6.028?
Q. Well yeah, but you want --
A. The pH?
Q. You want to give me -- you want me to give you



all the other brands that are not as good or are above 6.028?
A. No, I just want to know what's happening.
Q. Yeah. I'm saying assume that's Marlboro --
A. All right.
Q. -- as measured by an outside organization.
A. Okay.
Q. Okay. Now --
A. I guess he indicates that most cigarettes have a pH of 5.5.
Q. Correct.
A. So I don't know where the 5.5 comes from, but the biggest-selling cigarette in 1988 was Marlboro, which had a pH of 6.028.
Q. Well, but that's -- that's exactly my point because what he's saying is that even if you take his pH of 5.5, --
A. Yes.
A. -- he goes down to say, "When the smoke reaches the small airways and alveoli of the lung, the nicotine is absorbed rapidly regardless of the pH of the smoke." Do you see that?
A. I see that.
Q. And if that is true, if what Dr. Benowitz is saying is true, then the difference between 5.5,



6.028 or 6.5 in his view, as stated here at least, is that none of that really makes a difference when it comes to absorption in the lung; correct?
A. That's what he says.
Q. Okay.
A. But unfortunately, he did not have the access to the documents about pH that I've seen that indicate that pH does affect absorption, increasing the absorption across this very membrane.
Q. Well I'm going to get -- I'm going to get to exactly what the data shows about absorption in just a minute. But if we take what he's saying in this article as being accurate, Dr. Hurt, then variations in the pH of smoke just are not going to affect absorption of the lung; true?
A. Well I would say again, the accuracy of the report has to do with the information. He says in

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.tobaccoindustrydocuments.ucsf.edu/docs/zzhd0001

here that most cigarettes are acidic with a pH of 5.5, which is .5 different from the Marlboro of the day. I mean that's -- I'm just saying that the information that he may have had may have been different than what the companies had.
Q. Okay. But if he -- if he assumes that it's 5.5, then he's saying that even when you're talking about more acidic smoke, less free base, even the more



acidic smoke, pH makes no difference; correct?
MR. CIRESI: Objection as a misstatement of the document, Your Honor. Only says absorbed rapidly.
THE COURT: Okay. I think you'll have to rephrase that question, counsel.
BY MR. BERNICK:
Q. What he says here is that even if you assume that the smoke pH is only 5.5, it doesn't make a difference. That's what he said right there; correct?
MR. CIRESI: Objection. It's a misstatement of the document.
MR. BERNICK: Your Honor, the article speaks for itself.
MR. CIRESI: Well --
THE COURT: Well we are doing our own interpretation.
Do you understand the question, doctor?
THE WITNESS: No. I'm just saying what the article says, and I guess that's the way I would say it.
Q. Dr. Hurt, if the article is correct, then variations in the pH of smoke by his own terms do not make a difference to the absorption of nicotine.



True or false?
A. What he says is when tobacco smoke reaches the small airways and the alveoli of the lungs, it can be absorbed rapidly regardless of the pH of the smoke. That's what he said.
Q. Now in point of fact, isn't it true that the pH of smoke -- let me backtrack for just a moment.
Tobacco contains, in this country, burley tobacco; does it not?
A. Say again?
Q. Cigarettes in this country contain burley tobacco; do they not?
A. Some of them do. I'm not sure if all of them do, but some of them do.
Q. And is it true that burley tobacco has ammonia in it naturally?
A. I guess I really have not looked at the -- all of the contents of burley tobacco. That's really, again, we think -- we've talked about this earlier -- the composition of the formulas, if you will, and what's in each individual ingredient is under the purview of one of the other experts.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. I guess what I'm asking you is: Do you know one way or another whether even variations in tobacco crops from year to year can produce differences of pH





of smoke? Do you know one way or another?
A. Well I think there are differences in nicotine content from one year to the other, depending on whether it is dry or wet. And there are a lot of variations from year to year and there will be variations in other constituents in tobacco, sure.
Q. Do you know how much pH can vary from year to year depending upon the tobacco crop?
A. No.
Q. Do you know if Dr. Benowitz has ever retracted the statement that's contained in this article?
A. I wouldn't know that, no.
Q. Let me ask you something else. I want you to now assume --
I want you to now assume that the pH is increased so that it's like a cigar, it's way up over here, the pH of cigar smoke, that's three or four, that's way up here.
A. Correct.
Q. You with me?
A. Yeah.
Q. Isn't it a fact that you say that that -- that --
At that pH, it's more easily absorbed; is it not?





A. There's more free base nicotine when the pH is eight, yes.
Q. Okay. And isn't it also true that the nicotine that's in smoke in fact has the opportunity to be absorbed all the way down; that is, from the mouth all the way down to the deep lung?
A. Sure.
Q. Okay. Wouldn't you expect that there is more opportunity for that same free nicotine to be absorbed in the mouth?
A. If it's held there, and I think that's what Benowitz says here, he says, "Chewing tobacco, snuff and nicotine gum are buffered to an alkaline pH to facilitate the absorption of nicotine through the mucous membranes." And that's --
They buffer this to a higher pH in order to facilitate that. So if there's a higher pH in the -- in the smoke, then it will go through the mucous membranes in the lungs more rapidly because there's more free base nicotine. That's correct.
Q. Okay. Now isn't it true that studies have been done on vaporized nicotine in inhalers?
A. Well there are -- there are products that have been introduced or tried to be introduced that had vaporized nicotine in them. There have been



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

experiments using pure vaporized nicotine.
Q. Okay.
A. And most of it's absorbed through the mouth because there's no vehicle to take it into the lungs.
Q. Oh, really? When you go -- when you --
When you breathe in on an inhaler, it doesn't go into your lungs?
A. It depends upon which kind of inhaler you're talking about. If you're talking about the nicotine inhaler, which is a new product --
Q. I'm talking --
A. -- which is a takeoff -- well I'm talking about -- you asked about nicotine vapor products.
Q. Okay.
A. The Favor cigarette, as -- was called that, was a vapor -- little sponge in the middle of a plastic rod that had nicotine in it, and it was a vapor when it came out of that, and the absorption takes place through the mouth.
There's a new product coming out later on this year called the nicotine inhaler, and it basically is the same thing; you puff on it and the absorption takes place through the mouth. It is not inhaled. So it depends on which kind of a inhaler you're talking about.





Q. It was not designed to be inhaled?
A. That one is not, no.
Q. I see. Have studies been done to determine whether it can be inhaled?
A. Say again?
Q. Have studies been done to determine whether in fact it is inhaled?
A. That device?
Q. Yes.
A. Yes, they have. And it isn't.
Q. Okay.
A. The absorption takes replies that the mouth and it tops about right here. And they've done very, very nice PET scan studies to show that.
Q. Right. Now when that is administered, is it administered like an asthma inhaler?
A. No. It's a vaporized, little device with a sponge that has impregnated in it nicotine, and nicotine comes off in the form of a vapor.
Q. And the Favor device, what was that?
A. The same sort of thing. It had a little tube, a plastic tube that had a sponge basically in with liquid nicotine, and the vapor came off. And people would puff on it, but the absorption would take place through the mouth.





Q. Yeah. Now those studies also showed that the nicotine in vaporized form is very readily absorbed in the oral cavity; did they not?

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. It depends on the pH of the oral cavity. If you put Coca-Cola in your mouth and put a piece of nicotine gum in your mouth, you change the equilibrium, so you reduce the amount of free base nicotine. We tell patients this, because if they don't understand when they are using nicotine gum, then they won't get the effect of it. If you put something more alkaline in your mouth when you have the nicotine gum in place, --
Q. Right.
Q. -- then you'll get higher absorption because there will be more free base nicotine. It is really all dependent on pH.
Q. And do you know what the pH is of those inhalers?
A. Oh, I guess I can't recall off the top of my head, no.
Q. Isn't it all vapor phase nicotine?
A. It is vapor, but I couldn't tell you what the pH is off the top.
Q. Isn't vapor phase nicotine always on the far side, the high side of the pH scale?



A. It's the volatile form and it would be more likely to be free base.
Q. Right.
A. Correct.
Q. And therefore those studies of vapor phase nicotine, free base nicotine in the inhaler show that it's very readily absorbed in the oral cavity; correct?
A. It's absorbed in the oral cavity.
Q. Okay. And in fact isn't it true that Dr. Benowitz has views on what the effect would be if you increased pH of tobacco smoke; does he not? That is, on the --
A. You obviously have something in front of you that you're asking me about, so you might as well tell me what it is and we'll look at it.
Q. I just want to find out if you under -- if you heard about this before I show it to you, that's all.
A. Well just show it to me and that will --
Q. Okay.
A. -- save us some time.
Q. Okay. This is exhibit -- volume one, tab 38.
A. Thirty-eight in volume one?
Q. Yes. And the exhibit is GK555.
A. Okay.



Q. Are you familiar with a report of Canada's Expert Committee on Cigarette Modifications?
A. I have heard of this, but I'm not sure if I've ever reviewed this report.
Q. Well isn't it a fact that there were --
A. Excuse me. I can't remember who sponsored the meeting.
Q. Isn't it true that Canada had a fairly active

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

program of determining how to modify cigarettes over the years?
A. I have heard of this, but I'm not sure how active the program is.
Q. Well, in fact, what this reflects is that there were conference proceedings from March the 1st to March the 3rd of 1996 in Ontario.
A. Correct.
Q. And this constitutes a report of the expert committee on which Dr. Benowitz sat; correct?
A. I'm trying to see who it was sponsored by. At the bottom of the page it says sponsored by, but it's all blocked out.
Q. What?
A. Who -- who sponsored the meeting.
Q. I don't have a better bottom of the page than you do. Hang on for a second. Let's go on for a



minute.
Do you see who the biographical -- who attended this process? If you go on to page three of the table of contents.
A. Yes. There's several people there.
Q. That's a pretty distinguished group; is it not? Dr. Benowitz, one of the authors of the '88 Surgeon General's report.
A. Uh-huh.
Q. Dr. Henningfield, another one. Do you recognize Dr. Hoffmann as being one of the leading writers and authorities on the subject of cigarette design?
A. I can't remember who Dr. Dunn was.
Q. Well there are some --
A. There -- there are people I recognize, sure, Benowitz and Henningfied are certainly recognizable.
Q. And there are people from the tobacco industry, David Townsend is from Reynolds. His name is there; correct?
A. I've -- I've heard that name. I associate it with a tobacco company but I couldn't tell you which one because they all kind of blur together after a while.
Q. So it's another one of these kind of cooperate or group meetings to talk about modifying cigarettes;



correct?
A. I'd have to read this more to really be able to say that. I mean that's what the title says, though -- but I can't figure out who sponsored the meeting.
Q. Dr. Hurt, let me get to it this way. If you turn to page 54 --
MR. CIRESI: Your Honor, the document's not in evidence.
MR. BERNICK: I'm not going -- I don't -- I'm not going to ask him -- I'm not going to ask to put it in evidence. I'm just going to ask to see if he's heard the views expressed by Dr. Benowitz in

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

this document.
MR. CIRESI: Then he's using --
MR. BERNICK: I don't think --
MR. CIRESI: I'm sorry.
MR. BERNICK: Your Honor, he asked me what I was reading from, and I gave it to him since I'm more than happy to do that. I was prepared to ask him at the beginning, I'm still prepared to ask him if he ever heard Dr. Benowitz express these views. So either way.
THE COURT: Do you want to just ask him if he ever heard that question?



MR. BERNICK: Yes, that's exact right.
THE COURT: Just ask him the question and he can answer that question.
BY MR. BERNICK:
Q. Dr. Hurt, have you ever heard Dr. Benowitz express the view that with regard -- with respect to pH, it's his impression that "Whatever gets into the lung pretty much gets absorbed. The lung has a huge surface area and is highly buffered. A more important factor when considering pH is the proportion of nicotine found in the vapor phase. This would impact on the upper airway nicotinic stimulation and determine how much nicotine could be absorbed from the mouth."
THE COURT: Counsel --
Q. That is --
MR. CIRESI: I'm going to object to this --
THE COURT: Yeah.
MR. CIRESI: -- as reading from a document.
THE COURT: I don't think that's quite exactly what I would classify as a question, just reading a large paragraph. If you have a question --
MR. BERNICK: Yeah, I'll ask the question.
THE COURT: -- then ask the question.
MR. BERNICK: I'll put it this way.



BY MR. BERNICK:
Q. Did you ever hear Dr. Benowitz express the view that increasing the pH would increase impact to the mouth and throat area, impact, which is a stimulation, but would not affect bioavailability? Have you ever heard Dr. Benowitz express that view?
A. I've heard Dr. Benowitz express a lot of views. I guess I can't tell you that I've ever heard him express that in that way. I -- we -- we talk a lot. That's why I keep asking about the -- what the -- who sponsored this, because there was one conference in Toronto where Dr. Henningfield and others were invited which was actually sponsored by the tobacco companies and The Tobacco Institute, and they really didn't know about that when they got there. This may be a different one because there have been others like that. So if this was sponsored by the tobacco industry I guess I would like to know it so I can

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

understand --
Q. I don't believe it was. And I believe that the chair is independent of the tobacco industry, but I can verify that.
A. Well I was just -- I mean that's why I kept asking who sponsored this.
Q. I understand.



A. And I have not heard Dr. Benowitz go into a great deal of detail about this. We've talked at conferences -- that's one of the ways we learn things, by the way, is to talk about various things at various conferences. I have not heard him address this specifically. But again, he has not had the advantage to have what I've seen with regard to pH and pH manipulation that the companies have been doing for 30 -- 20 or 30 years.
Q. This document is dated 1996; correct?
A. Correct.
Q. Okay. And so this is really within the last two years; true?
A. Yes.
Q. Okay. And all I'm asking you is at the time, before you came in to testify about pH and whether increasing pH would result in more absorption to the lung or, instead, more absorption to the mouth, did you consult the scientific literature to see what people like Dr. Benowitz thought about that subject?
A. I knew what he had written before, yes. We always cited that one article I think you talked about before, which was about the lung absorption. That -- that's -- that's what he said, sure.
Q. So you're familiar already with Dr. Benowitz's



views that by increasing pH, what you're really going to do is increase stimulation to the mouth, but not necessarily increase bioavailability for the lung. You're familiar with that view?
A. I think that's what he has said in the other article for sure, and I'd have to look through this one. I mean this is a -- I don't know how many pages long it is, but it's, you know, 70 or 80 pages. I guess if I were going to make a real comment about it, I'd have to look at it in some more detail and understand the context in which he said that.
Q. And isn't that also the lesson of cigar smoke, that cigar smoke is higher in pH, it has more absorption of the mouth, but people don't inhale it? Is that the lesson of cigar smoke?
A. That is the way cigar smoke can be used, but cigar smoke can also be inhaled. And if it is inhaled, you would have higher amounts of free base nicotine because it has a higher pH. And if that's the case, the bolus that would go across the membrane would be much higher. So cigar smokers do inhale, and some of the toughest patients we treat are those who use the other forms of -- of nicotine and have

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.tobaccoindustrydocuments.ucsf.edu/docs/zzhd0001

very high levels, even though they may not inhale quite as deeply as cigarette smokers do.



Q. To clarify, I think if you take a look at the -- at the page six, section two, you will see --

MR. CIRESI: Your Honor, I'm going to object to the use of an exhibit which is not in evidence and counsel continuing to read from it and asking the witness to check.

THE COURT: Counsel, it's time to introduce the exhibit or move on.

MR. BERNICK: Okay. I'd be happy to introduce the exhibit. I don't know that this witness can lay a foundation. I simply asked a question about the document.

THE COURT: You may want to try.

MR. BERNICK: Is that right?

THE COURT: And see how you do.

MR. BERNICK: Okay. Let's try.

BY MR. BERNICK:

Q. Dr. Hurt, is the document that's before you, which is GK555, is that a document reflecting the views of scientists who have authority and are reliable in the field in which they're -- in which they're speaking; that is, the field of nicotine and addiction?

MR. CIRESI: That's irrelevant.

THE COURT: You may answer the question.



A. I recognize these people, Benowitz and Henningfied.

MR. BERNICK: Okay. Would -- I'm sorry, Your Honor. We would then offer this as a learned treatise given his recognition of those people as being authorities within the field.

THE COURT: I think you're going to have to ask a follow-up question.

MR. BERNICK: I guess I'm -- I'm just -- I'm just not following, Your Honor. I think we established --

THE COURT: The fact that he recognizes the people does not make it a --

You'll have to direct it to the study.

MR. BERNICK: Okay, I'm sorry. I thought he said something else.

BY MR. BERNICK:

Q. Do you not only recognize them, but acknowledge that they are people who are authorities within the field in which they're speaking?

A. Well Dr. Henningfield and Dr. Benowitz certainly are. But they're two of a large number. Some of them I don't recognize at all.

Q. But certainly with respect to Dr. Benowitz, you would agree that he's a reliable authority in his



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

field.
A. Sure, uh-huh.
MR. BERNICK: We would then offer, Your Honor, just to make it simple, the portions of this document that reflect the views of Dr. Benowitz.
MR. CIRESI: Objection.
MR. BERNICK: Or -- or the whole thing. It makes no difference to me.
THE COURT: And which portions are they, counsel? I'd have to --
MR. BERNICK: Just the one that he read from is the one that's germane. That's page -- page 54. As a matter of fact, page 54, Your Honor, is distinguished because -- well it's got Dr. Henningfield and Dr. Hoffmann as well on it.
MR. CIRESI: Objection. It's not a peer-reviewed journal, he hasn't testified that he's relied on it, there's no expert who has testified that he relied on it, and thirdly, he wants to produce part of it and not all of it. We object to the introduction of the evidence.
THE COURT: I'm going to sustain the objection at this time. Maybe you'll have an opportunity to review it, and you can re-ask the question at a later time.





BY MR. BERNICK:
Q. Would it refresh your recollection, and I -- I will not seek to introduce the document.
Would it refresh your recollection that the expert -- Canada's Expert Committee was formed in connection with the Health Canada, which is essentially the Department of Health in Canada?
A. No, without reviewing this. I mean this is something I haven't ever seen. And the only reference I would have is the one I made earlier, who sponsored it, and if it was the one I mentioned to you earlier, I know there were some people, including Jack Henningfied, that were upset. And in fact there are statements that I've actually had a chance to see now that this -- I mean this may be the conference I'm talking about, I don't know. And I don't know where it came from.
MR. CIRESI: Your Honor, we're getting to a point where he may be referring to a document that's not in evidence, and we're going to have a record that's just not appropriate.
THE COURT: All right. I think we should move on.
MR. BERNICK: No problem.
BY MR. BERNICK:





Q. Let me get back to the chart that we had out before, if I can locate it.
THE COURT: Counsel, can you give us -- can you give us the exhibit number?

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

MR. BERNICK: I'm sorry?
THE COURT: Do you have a exhibit number?
MR. BERNICK: I'm looking around for a document. It seems to have disappeared temporarily. Let's just deal with it this way.
BY MR. BERNICK:
Q. Remember the chart that basically shows the tar deliveries falling over time from the '79 Surgeon General's report?
A. Right.
Q. And again, we got into this whole discussion about nicotine that tends to fall with the tar, and this is called general reduction; right?
A. That is the reduction over time, yes. Both things go together.
Q. And because of the issue of compensation, the issue was whether people smoking a lower delivery would smoke it harder and boosting its delivery in order to get more nicotine. That was the issue; right?
A. Correct.



Q. Just kind of taking us back a little bit.
A. Yeah.
Q. Now one of the proposals that was made that we've just talked about was to make lower delivery cigarettes more attractive by increasing pH; right?
A. More attractive in what way?
Q. More satisfying to smokers; that is, that smokers who were accustomed to a certain level of nicotine would still smoke a low delivery cigarette without compensating if the pH had been boosted.
A. You're talking about the drug effect of nicotine.
Q. Yeah. That was one of the -- that was one of the things that we read out of Dr. Gori's article; right?
A. Well the higher the -- higher the pH would allow for more free base nicotine to be present.
Q. So again, National Cancer Institute at least expressed the idea that boosting pH might help people become more accepting of the lower delivery. That was the --
MR. CIRESI: Objection, repetitious, asked and answered.
MR. BERNICK: We're creating a foundation for the next line of questioning.



THE COURT: You may answer.
Q. That was -- that was the concept; right?
A. The National Cancer Institute when?
Q. Dr. Gori's article, 1976.
A. That was his article. That's what he talked about, yes.
Q. Right.
A. But I don't know if that was the position of the National Cancer Institute. He worked there.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. Sure. Dr. Gori's position is the director of smoking and health at the National Cancer Institute; right? That's what he was at the time.
A. That's what he was when he wrote his article, yes.
Q. All right. Now there was another idea that was expressed bring the National Cancer Institute at this same time, which was to change the ratio of nicotine to tar so that low delivery cigarettes would still have high nicotine. Are you familiar with that concept?
A. I have seen a lot of information about that. I'm not sure if it came from the National Cancer Institute. In fact, I think it predated the time that you're talking about.
What was the time of the National Cancer



Institute you're talking about? What was the date?
Q. Well in point of fact it's in much of the same article; isn't it? Do you want to go back to that article? Volume one, tab nine.
MR. CIRESI: Is that GI27?
MR. BERNICK: Yes.
A. Tab which? Nine? Tab nine?
Yeah, here it is. That's it.
Q. This is at tab nine.
A. Okay.
Q. Do you see where there's a reference there -- again the same basic paragraph, this is down at the bottom, it say, "Thus it appears that the hazards of cigarettes can be reduced by...." It's on the very first page of the article.
A. Okay, first page. Which column?
Q. Down at the bottom right.
A. Where it is "The technology to achieve...?"
Q. Just above that.
A. "Thus it appears...," Okay.
Q. "Thus it appears that the hazards can be reduced by," and it continues on, "and by an adjustment of nicotine level." Do you see that?
A. Yes.
Q. And in fact that was also a suggestion that was



made in the Tobacco Working Group by the National Cancer Institute, was to change the nicotine levels while lowering tar; right?
A. I'd have to look at that too. I'm not --
That may have been there, sure.
Q. Did the Surgeon General of the United States in 1981 also suggest the evaluation of cigarettes with lower tar-to-nicotine ratios?
A. I'd have to look at the report. It's an '81 -- there are a lot of Surgeon General reports, so if you have something there, we can look at it.
Q. Okay. This is in evidence as what?
Tab 53, why don't you take a look at tab 53.
MR. BERNICK: CG237. I think it's already

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

in evidence.)
A. Different book?
Okay.
Q. Take a look at page 58.
A. It's behind tab 53? Tab 53?
Q. Let's look at tab 58.
MR. CIRESI: Can I just hand him my copy?
A. Well I'm at tab 53, but there's no --
Q. I'm sorry.
A. There's no page -- it goes from page 200 to some odd -- it's only part of the -- it's only part of the



report. And then it goes from the index to -- starts out on chapter eight, section eight, page 195. If I'm on the right tab. I just want to make sure. Is it tab 53?
Q. Why don't you try at tab 13 -- volume one, tab 13-A.
MR. CIRESI: May we have the exhibit number, Your Honor?
MR. BERNICK: That's Exhibit GJ114.
Q. I have the report itself.
(Document handed to the witness.)
A. Okay.
Q. Is that a section of the report of the Surgeon General, 1981?
A. Yes, it is.
Q. I'm sorry for the screen. It appears to have gone to a black background, but I think it will still work, and I'll figure out the screen here in a minute.
But do you see here where the Surgeon General in 1981 stated, "It is necessary to evaluate cigarettes with lower tar to nicotine ratios than are currently found in the marketplace." See that?
A. Yes.
Q. And that would essentially mean that there is



less tar, more nicotine in relationship to one another than what's presently in the marketplace; right?
A. Well it says, "Compensation by smokers of lower tar and lower nicotine cigarettes appears to be based on nicotine delivery." That's what it says. And "The tar to nicotine ratio may limit the delivery of smoke constituents to the smoker."
Q. Right. And then "A low ratio" --
A. "A low ratio might be a desirable strategy for lower risk cigarettes." That's what it says.
Q. Okay. So the idea is that here's a strategy for a lower risk cigarette, explore it. The strategy is lower the tar but maintain the nicotine; right?
A. I think what it says is change the ratio.
Q. Change the ratio.
A. Right.
Q. And change the --
A. You could do that -- you could do that by

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

raising the nicotine or lowering the tar, or vice versa. So if you get rid of the tar, the ratio would change too.
Q. Right. So if --
Or if you lowered the tar and maintained the nicotine, the ratio would change.



A. Sure. With ammonia.
Q. Right. So the idea is maybe we could have people who would be satisfied with less tar if we maintained the same amount of nicotine; correct?
MR. CIRESI: Objection, it's a misstatement of the document.
MR. BERNICK: It's not a misstatement of the document.
MR. CIRESI: Well, Your Honor, --
THE COURT: Counsel. Is your objection complete?
MR. CIRESI: Yes. It's a misstatement of the document.
THE COURT: Okay. Restate the question because that's not what the document says.
MR. BERNICK: Okay.
THE COURT: At least ask the question without referring to the document.
BY MR. BERNICK:
Q. "A low ratio might be a desirable strategy for low risk -- lower risk cigarettes." How would this strategy reduce the risk of cigarettes?
A. I've already lost my concentration, so can you repeat the question?
Q. Yes. They're talking here about a strategy for



reducing the risk of cigarettes; correct?
A. Yeah. But they started out by saying there is no safe cigarette and no safe level of consumption, was the first conclusion of the whole report. So they're trying to figure out -- and this is number nine out of a series of whole -- of all kinds of different sections -- things to try to figure out how to make the cigarette safer. So this is -- this is the way of possibly doing it. If you could lower the tar, which is assumed to be and is the carcinogen in the cigarette smoke, then you might have something that would be safer to smoke.
Q. So the strategy is you lower the tar, maintain higher levels of nicotine; correct?
A. That's -- that's what it would do if you change the tar-and-nicotine ratio.
Q. Okay. Now would that constitute the manipulation of nicotine?
A. It depends on how you did it. I mean you obviously would have to do something to change the delivery of nicotine.
Q. That --
Wouldn't that be the manipulation of nicotine?
A. Well I guess it would be, but the whole point is

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

before this already --
MR. BERNICK: Your Honor --
A. -- by changing the -- changing the pH and changing the free base nicotine.
MR. BERNICK: Your Honor, move to strike as not being responsive.
THE COURT: It is non-responsive.
Q. Wouldn't this be --
Isn't this a proposal that the companies begin to look at the idea of manipulating nicotine levels?
A. To manipulate the tar-and-nicotine ratio, would this be a proposal to do that?
Q. Is this a proposal to manipulate nicotine ratios?
A. It would be that, yes.
Q. Okay. And if the companies were to go ahead and make this change pursuant to the Surgeon General's suggestion, that would constitute the manipulation of nicotine; correct?
MR. CIRESI: Objection. Again it's a misstatement of the evidence.
MR. BERNICK: I'll withdraw the question.
BY MR. BERNICK:
Q. In point of fact, the companies did do research on changing tar-to-nicotine ratios; did they not?



A. They'd been doing it for 20 years before this report was issued. Yes, they did.
Q. Did companies do research on changing tar-to-nicotine ratios, doctor?
A. Yes, they did. And they'd been doing it for a long time.
Q. Okay. And Dr. Hurt, do you know what research reports were created on the effect of altering the tar-to-nicotine ratio?
A. What research reports from the companies were made?
Q. Yes.
A. I saw many different reports within the documents that I have reviewed, but I don't recall anyone ever saying that they had submitted those to the Surgeon General in 1981 so they might know what was already known in -- within the industry. I mean I don't -- I don't recall any reports that -- that -- that said that. There were a lot of reports within the industry documents about the tar-to-nicotine ratios. Yes, there were.
MR. BERNICK: I move to strike the first part of the answer as being non-responsive.
THE COURT: Okay. I think it's sufficiently responsive to that question.



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Support provided by the Tobacco Industry Documents Library at the University of California, San Francisco. http://www.tobaccodocuments.ucsf.edu/docs/zzhd0001

Q. Isn't it a fact that what the companies found when they altered tar-to-nicotine ratios is that it had an effect on the harshness and irritation of the cigarettes? Do you know one way or another?
A. It depends on how much ammonia they added. If you added enough ammonia, it would reduce some of the harshness. That's one of the -- one of the documents said that. And it also depends on the other factors you just mentioned, what are the other factors in the -- the formulas, if you will, that may have -- may have addressed that as well.
Q. Did you or did you not find research reports specifically commenting on the effect of changing tar-to-nicotine ratios on taste and consumer acceptance? Did you find them or not?
A. I -- I recall seeing things like that, but they were like in the '60s and '70s. I mean that's -- I recall seeing documents that would address that and consumer response to that, but they were a long time before this document.
Q. I see. Did you look at the documents in the 1970s and 1980s after these suggestions were made that discussed what the effect was of changing ratios on harshness?
A. I remember seeing documents that addressed that,



but I couldn't cite you which company. Because there was a common theme amongst all of the documents having to do with this -- this -- this fact, so there were documents like that, but I couldn't tell you which company it was or exactly what time.
Q. At the end of the day, Dr. Hurt, at the end of the day, when it comes to the trend of nicotine and the relation to tar, where has that -- as measured by the FTC delivery, where has that nicotine trend ended up today?
A. I guess I really haven't -- I -- I wouldn't have a chart that I could bring into my mind that would tell you exactly where it is today.
Q. Okay. Well you've told us and you've told us in testimony both on direct and on cross-examination that people smoke for nicotine; right?
A. Correct.
Q. And you told us that there were all kinds of different ways the companies were thinking of changing nicotine deliveries; true?
A. Not thinking. They did.
Q. Well the testimony will be whatever it is.
There were all kinds of ways where the companies did research into ways of changing nicotine deliveries; correct?



A. That's correct. And then -- then they did.
Q. And it's your theory, it's your statement that people smoke for nicotine; correct?
A. That is the drug we're talking about.
Q. Are you familiar with the research that's been

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

done in the last two or three years on people smoking for tar instead of nicotine?
A. I've seen reports to that effect, yes.
Q. If you take a look at the as-measured FTC deliveries of nicotine out to today, have the companies raised nicotine deliveries, kept them the same, or continued to keep them coming down?
A. I'd have to look at the chart to tell you that, I guess. I don't have that in my -- my immediate memory.
MR. BERNICK: Your Honor, this would be a good time to take a short break so I can get some other things together, if that's possible. Or --
THE COURT: How long do you anticipate you will be going, roughly?
MR. BERNICK: I'm going to take the balance of the day in any event, but --
THE COURT: Okay. I'm just trying to plan.
MR. BERNICK: I just need a few minutes, and I don't --



THE COURT: Sure. Okay. Before we do break, just for the information of everybody, Monday the 16th of February, I think, is a holiday, President's Day, and there was some ambiguity as to whether we'd be holding court at that time, and the answer is we will be, I'm sorry to say.
We'll take a short recess.
(Recess taken.)
(The following statement was made for the record out of the hearing of the jury:)
MR. BERNICK: Exhibit GK00018 was tendered to the witness. It was not offered in evidence, but it was not on our disclosure with regard to this witness. And I'm placing this on the record in order to disclose that. I think our hope and expectation is that this will not happen very frequently, but it may happen from time to time on both sides of the case.
MS. WALBURN: Right. And I've just asked Mr. Bernick to place it on the record so when the occasion happens that plaintiffs make the same error, the same courtesy will be made.
MR. BERNICK: It will be.
MS. WALBURN: Thank you.
(Statement for the record concluded.)



THE CLERK: All rise. Court is again in session.
(Jury enters the courtroom.)
THE CLERK: Please be seated.
THE COURT: One other point I'd like to make with respect to the holiday. I believe that the parties entering the building will all have to enter through the front door. I don't think the skyway will be open on that particular day. And so you may want to anticipate that also.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Go ahead, counsel.

MR. BERNICK: Thank you.

BY MR. BERNICK:

Q. I'd like to pursue another subject with you for a little while this afternoon, doctor -- oh, I forgot. I want to make a correction, Your Honor. In the Thornton 1978 book, I made a reference to a Dunn as a contributor. Turns out that there were two Dunns at the conference, one was from Imperial Tobacco of the U.K. and the other was from Philip Morris, and I believe that the Dunn who submitted the paper that I referred to was not from Philip Morris, he was the Imperial Tobacco Dunn. And I'll -- I'll try to confirm that over the weekend, but I didn't want to leave a misimpression.



THE COURT: Thank you.

Q. Hmm, got that wrong.

Now let's talk a little bit about the history of people quitting smoking.

A. Okay.

Q. And the question that I have for you is: I think you showed early in your direct examination a chart that had trends for the incidence of lung cancer on it. Do you remember that?

A. Yes, correct.

Q. Showed it coming way up and being above other forms of cancer?

A. Yes.

Q. And I think you testified to some statistical studies that had been done in the early 1950s that were retrospective studies.

A. My -- I guess I'm not sure I remember what -- which one you're talking about.

Q. Let's get at it this way. In the early 1950s, a series of studies came out, epidemiological studies --

A. Oh, okay. I got you. That showed the association between smoking and lung cancer, that it caused lung cancer? Yes.

Q. Right. And those epidemiological studies



started to pick up through retrospective analysis that trend line; right?

A. The trend line of --

Q. The increase in -- in lung cancers.

A. No, those -- those are the lung cancer deaths. What I showed you were lung cancer deaths.

Q. Right. And the epidemiological studies would be based upon comparative mortality and would show an increased incidence of lung cancer with respect to smokers; right?

A. Those are lung cancer deaths. I'm note -- I'm not following some -- those were lung -- those are cancer deaths --

Q. Right.

A. -- for men and women.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. Right.
A. Included other things other than lung cancer, so breast cancer was on there. So those were the cancer deaths in men and women.
We're not on the same page here.
Q. We're not. Let's make it much simpler.
In the early 1950s some studies came out that provided epidemiological linkage, statistical linkage between smoking and disease; correct?
A. They were in the '50s, yeah.



Q. Okay.
A. There were -- there were some earlier than that, there were some in --
Q. But those studies in the early 1950s -- I'll just put down "studies" -- were pretty widely publicized; were they not?
A. They were published in like -- one of them, Hammond and Horn, was in the Journal of the American Medical Association. That was one of them I remember, yes.
Q. And do you recall the mouse skin-painting studies by Dr. Wynder came out as well?
A. Yes, but they were -- they were not well publicized in the same sense that like Hammond and Horn were. It depends on what you mean by "well publicized," whether it's the public literature or the scientific literature.
Q. I'm talking about New York Times, I'm talking about Reader's Digest, I'm talking about lay publications. Were they pretty widely carried?
A. They were, yes.
Q. In fact isn't it true that Reader's Digest went through kind of a campaign against smoking, they had articles called like "Cancer by the Carton," do you recall that?



A. I wouldn't call it a campaign, I would call it accurate reporting.
Q. Okay. Well that's fine, accurate reporting. Reader's Digest made a point of carrying a series of articles that focused on the risks associated with smoking; correct?
A. I think that's correct, but I couldn't tell you what year it was. It was in the '50s. They also stopped taking cigarette advertisements at some point in that time too.
Q. Now isn't it true that about this point in time there started to be anecdotal reports; that is, not studies, but people kind of writing in and saying I've-quit-smoking-and-here's-how-I-did-it type of thing. Did the Reader's Digest carry reports like that back in the early 1950s?
A. I don't know.
Q. Okay.
A. I was ten, 12 years old at that time.
Q. All right.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. Fourteen years old.
Q. Fine. Would it be fair to say that over time, as the publicity grew, the trend of people quitting smoking also grew?
A. I think there were --



The smoking prevalence went the other way. Smoking prevalence went down.
Q. Right.
A. Certainly for men, because in the mid-'60s over half of all men were smokers in this country. So I don't -- I don't know that --
I haven't really thought about it quite in the way you're presenting it.
Q. Let's take -- by 1964, when the Surgeon General --
By 1965, the year after the Surgeon General report came out, isn't it true that of all smokers, all people who ever were smokers, about 29 percent of them had already quit? True?
A. I'd have to look at a -- if there's something in -- like if it's in one of the Surgeon General's reports that said that.
Q. Yes.
A. I don't --
If you've got that, we can look at it.
Q. The 1990 Surgeon General's report -- oh, you know what? I have to say this one was not actually listed.
Are you familiar with the Surgeon General's reports regarding the percentage of smokers who have



quit?
A. I've seen a lot of that, but I couldn't -- I can't tell you which ones reported that.
Q. Let me just give you a couple of figures and see if they refresh your recollection. If they don't, they don't. 29.6 percent of people who had ever smoked had quit as of 1965. By 1987, 44 percent of people who had ever smoked had quit. Do those sound like reasonable numbers to you? I'm not going to hold you to them precisely, but as a range.
MR. CIRESI: Object to the form of the question. If he wants to use a report, it should be placed in evidence.
THE COURT: Well I'll allow him to answer if he is able to answer it.
A. Well I think those are numbers kind of out of the clear blue. And I -- the other thing, I don't think that those -- if those are the right numbers for those times, I don't think they ever counted the ones that died, because they stopped smoking, too. And by that time there had been several million people who had been smokers who quit because they actually died.
Q. These are -- these are surveys that are surveys of people who fill out questionnaires and send them

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

in.
A. Well I know, that's the whole point, is that -- that there are -- that there are data like that that say X number millions of people stopped smoking, but the group they forget to tell about are the ones who died because they stopped, too.
Q. All I'm asking you, Dr. Hurt, is whether in 1965 all smokers, people who had ever smoked, approximately 29 percent of them had already quit? Do you know, "yes" or "no"?
A. I -- I don't. I'd have to look at whatever data -- data you're talking about.
Q. If I gave you 1987 and said that 44 percent of everybody who ever smoked had quit, would that sound right, or do you know one way or another?
MR. CIRESI: Your Honor, I'm going to object to the form of the question with respect to citing from a document, because -- and I don't want to argue. It's inappropriate, Your Honor.
THE COURT: All right. Maybe you can just ask the question, a straight-out question whether he knows that 44 percent quit.
MR. BERNICK: Yeah, right.
Q. Do you know whether, as of 1987, 44 percent of people who had ever smoked were former smokers, they



had quit?
A. There is some number, but I couldn't give you a 44 point -- I don't know if it's 44.7 percent. No, I don't know that at all. I'd have to look at a report to be able to tell you that. And that's -- there are a lot of numbers that are bantered about about those sorts of issues, and I'd have to look at the '88 report to tell you.
Q. If I --
A. If it's in '88 report, we can look at it right now.
Q. Today is it true that of all people who have ever smoked who are still living, that more than half -- more than half of them are former smokers today?
A. I -- again I'd have to know the context in which -- I mean you have this number from someplace, so you might as well just tell me where it is and we can look at the data.
Q. Well from --
A. These are not just numbers you thought up, so there are numbers from some report, so if you will just show them to me, we can go on.
Q. Yes. You have to understand that there are rules of court that we have to follow, and if I



haven't pre-identified something I can't use it. So

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

I'm just going to ask you questions based upon something that's already in evidence, which is the Surgeon General's report in 1988.
A. That would be fine.
Q. Did the Surgeon General in 1988 report that as of the 1985 survey -- right here -- 41 million people had quit smoking?
MR. CIRESI: May we have the exhibit number for the record and the page you're referring to, counsel?
MR. BERNICK: It's in evidence, it's your -- it's your exhibit. I -- I don't know what your exhibit number is. I've got one of our own, but --
MR. CIRESI: All right, Exhibit 3820.
MR. BERNICK: 3820.
MR. CIRESI: Do you have the page number, please, Your Honor.
MR. BERNICK: I have page 466.
MR. CIRESI: Thank you.
Q. Is that the figure that was in force --
A. Can I see it?
MR. BERNICK: It's your exhibit. Have you got one?



(Book handed to the witness.)
A. What page is it?
Q. 466.
A. 466. Okay. Yes, that's what it says. "According to the 1985 National Health Interview Survey, there are approximately 41 million former smokers in the United States."
Q. Okay.
A. That's what it says.
Q. Now you've talked a lot about in your particular program, that you use nicotine supplementation as part of the treatment process; correct?
A. Use nicotine replacement therapy as well as other medications, yes.
Q. Now I just want to try to get a little bit of the history together on when nicotine supplementation even became available. Okay?
A. Okay.
Q. And I have it down -- you tell me if this is right -- that it was in January of 1984 that gum, nicotine gum was first approved. Is that about right?
A. That's about right, yes.
Q. Okay. And isn't it true that it wasn't until 1991, somewhere back over here, that the nicotine



patch was approved for use?
A. Yeah. It's December of 1991.
Q. And is it also true that the gum, even in the 1988 report, the gum was reported to be of questionable value; that is, it didn't always work so well?

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

A. I'd have to look. Maybe -- if it's in here, I'd have to look and see what it says. Question was it was proven in randomized clinical trials, which is the standard, the gold standard, comparing nicotine gum to placebo, that it worked. If it hadn't have been, it would not have been approved by the FDA. The standard at the FDA for these kind of products is it has to be proved to be safe and effective. It has to work. And if it doesn't do those things, it's not approved.
Q. Yeah. But even after something gets approved in trials before it's introduced into the marketplace, it's then introduced into the marketplace and people do an awful lot more research to see if it really works; right?
A. Oh, sure.
Q. Okay.
A. And that's a process that's continuing on today.
Q. And in fact of point of fact, after nicotine gum



was introduced in 1984, the Surgeon General's report reflects that people who had done research had questions about its efficacy; true?
A. I'd have to look and see. And there were studies that had less -- showed less efficacy than others, and there were some that said that you had to have it to be given with behavioral treatments. There were a lot of different studies that came out after it was approved, yes.
Q. Now of all the 41 --
In 1985 the survey is done and it reports that 41 million people have quit; correct?
A. That's what it says here, yeah.
Q. And would it be fair to say that as of that time, gum had only just come into use? It's a very recent development.
A. Yes, that -- that would be -- probably wouldn't -- because it was only --
This was an '85 survey, so it was only out one year.
Q. That's my point.
A. Correct.
Q. So isn't it true that what the Surgeon General reported in 1988 is that of all those 41 million people, 90 percent of them had quit without -- you



tell me the words -- medical assistance --
A. It says formal treatment programs or smoking cessation devices.
A. Without the programs -- formal programs --
A. Formal treatment programs, right. Or smoking cessation devices.
Q. Or devices.
A. Yes. That was an article by Mike Fiore, and it hadn't been published yet because it was still listed as being in press.
Q. Okay. So these would be people that didn't have

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: https://www.industrydocuments.ucsf.edu/docs/zzhd0001

the benefit of nicotine supplementation, 41 million of them; correct?
A. There was no nicotine replacement therapy prior to '84, right.
Q. Would you agree with me that of those 41 million people, 90 percent of them, would you agree with me that all of those people who quit over all of those years made a choice to quit?
A. Well when you talk about the motivation that goes into having a person stop smoking, it can be a lot of different things. It can be the fact that they awaken in a coronary care unit with IV's running, burn marks on their chest, if that's a matter of choice, fine.



But the problem with that article, and I've talked to Dr. Fiore about this, we've discussed this at -- at length at various conferences after the article was written, the headlines were that, that's what reached the headlines in the newspapers, but when you dissect the article away, they didn't -- they -- they would say very clearly that there was no intention to say that that was the only factor. There are other factors that lead people to stop smoking. Maybe -- maybe advice to stop smoking from a physician, maybe a serious medical condition, so on.
So that 90 percent, quote, quit without formal treatment includes people who have other conditions that may have motivated them to do that. What it doesn't quit -- what it doesn't -- doesn't include are the ones that died. And so the 41 million number that you have there is way short of those that stopped smoking given from '58 to '88 there were many more that stopped because they just happened to die.
Q. Dr. Hurt, I'm asking you about the 41 million people. I'm asking you about the 90 percent of them who quit without a formal cessation program or any nicotine supplementation.
A. And that's what I just -- that's what I was just



trying to explain to you, was that the article that's cited here --
Q. Excuse me. I didn't finish my question.
A. -- is one article --
MR. BERNICK: I'd like to finish my question.
THE COURT: All right. We cannot have two parties talking at the same time. The reporter cannot -- we do have two reporters, but it just doesn't work.
Q. My question is with respect to those people who quit without nicotine supplementation, without any formal treatment, did they make a decision, did they make a choice to quit smoking?
A. For whatever reason they were able to stop smoking, and it may have included all the things that

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

I've already mentioned, which would be a serious medical complication, advice to a -- from a physician, problem with an asthmatic child in their home and they decided to stop smoking because of that. There are all kinds of reasons people decide to stop. The choice matter is not one of choice, it really is a matter of the drug dependence that they're talking about.

Q. You really don't think these people made a





choice?

A. They decided. "Choice" is your word, that's the industry's word. It's a bad word. They have decided --

They moved through the stages of change. If you want to talk about the stages people go through when they end up becoming abstinent from smoking, if we want to get into that, we can talk about that. But there is a well-defined set of stages that people go through before they reach the point before they actually attempt to stop smoking. This is a process. This is not something that people wake up every -- in a morning and say, "Well, I've never thought about this before. I'm not going to smoke any more."

Q. You don't think that people who decided to quit --

You don't think the people who decided to quit took responsibility on themselves for stopping using cigarettes? You don't think so?

A. Say again.

Q. You don't think the people who decided to quit under these circumstances took the responsibility on themselves and just made the decision to stop? You don't believe in that?

A. Well it's a process. I mean it's not just --





again it's a process. The stages of change is a well-defined transtheoretical model that people go through when they attempt to stop smoking. It is not just a matter --

I mean all of us have had experiences where Uncle Charlie was driving down the road in his pickup and he decided to throw his cigarettes out and never looked back. All of us have had that experience, and -- and that's great for Uncle Charlie. But most people don't do it that way. Most people have different things that happen to them over time that lead them through the stages of change from pre-contemplation, where they've never thought of this before, to contemplation, to preparation where they actually prepare for the stopping event, to action, which is the day that they actually stop smoking or try to stop smoking.

Q. In your treatment program, isn't the very first question, the very first message that you send people who come into your program, isn't the very first message: Are you ready to stop smoking? Isn't that

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

the very first thing they see when they read your materials?
A. That could be. That's obviously one of our brochures you have in your hand, and if that's what




it says in the first part.
Q. Because --
A. And are you ready -- are you ready has to do with just what I said. It's helpful for us and counselors and treaters to know where they are in the stages of change, because the intervention we provide for a person who is in pre-contemplation is very different from the intervention we provide for a person who is in action.
Q. Isn't the very first thing that you suggest that people do to stop smoking is being motivated to stop?
A. That's an important factor. I don't know if that's the first thing. It really depends on the patient and where they are in the stages of change. I don't --
That's a piece of paper from our program. I'm not sure which one it is. Each patient is very different and you cannot -- you cannot generalize because each patient is different. If the person is in a bed in the hospital after having had bad news about their coronary disease, that person is -- is a different person than a person who's 17 years old, afraid to come in to even think about this or to talk to anyone about it. People are very different and they're very different as far as the stages of




dependence.
So it's really difficult to say the first or the only because we assess them in their totality.
Q. Well but don't you tell people that the very first -- the first step in stopping is wanting to stop? Isn't that what you tell your patients when they come in?
MR. CIRESI: Your Honor, objection, asked and answered. He's using a document that's not in evidence.
THE COURT: I think it's been asked and answered.
Q. Isn't the reason that you focus on motivation is that if people are motivated, they're much more likely to succeed in the process of quitting?
A. One of our roles as treaters is to do just that, is to try to move them through these stages of change and to help them to see the relationship to whatever we're talking about. Maybe it's their disease, maybe it's their coronary disease or peripheral vascular -- making them to understand the relationship, to try to get them to set a date to stop. And the closer they set the date to stop to that -- that intervention increases their chances of stopping. But one of our goals is to move them through those stages of change.



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. And somebody who is ready, somebody who is motivated to stop, isn't that somebody who is making a choice to stop?
A. "Choice" is your word again, and I think that's the word that -- that really doesn't describe the process. Because the process may be long. The process -- I think I gave you an illustration yesterday of Frank, Frank -- I saw him from 1975 until he died last year, and he only stopped smoking after he developed congestive heart failure, and that's two years into the fact that he had lung cancer. And despite all of those things, he was unable to stop smoking with everything I tried to do for him. So he did not have a choice in this at all. The drug had taken over. The drug was the choice -- chooser for him, if you want to think about it that way. So "choice" makes it sound so warm and fuzzy, but we're dealing with real patients who die of tobacco-related diseases, and they are very different than what you've just tried to describe here.
Q. So nobody who stopped smoking is making a choice?
A. People who -- who decide to stop smoking go through these stages of change. They're very well worked out. There's a whole literature on this.



We've done a study on this. So if you --
To answer your question as far as you ready, a person who comes into our program that is in the action stage of readiness, which is I have decided to stop smoking within the next 30 years, they have a much better chance of being abstinent at one year than someone who came in who had not -- who was not at that stage of readiness. And so in that sense if they are higher on the scale as far as stages of readiness, then they do have better outcomes.
Q. Isn't it a fact that people who have done researching -- research on what it takes -- what are the predictors of success, single out motivation in their scientific research as one of the best predictors of success in quitting?
A. There are studies out there about smoking predictors. There are -- we've done -- we've done studies looking at predictors of outcome. The Fagerstrom Tolerance Questionnaire, if it's higher indicating a higher degree of dependence, has a poorer outcome. I mean that's -- that's one of our studies we've published which shows that if they're more dependent on the substance, they have a poorer outcome.
Sharon Hall has published a study about cotinine



levels being predictive. The lower the cotinine level, which indicates a lower level of addiction,

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

they have better outcomes than ones that have higher cotinine. There are all kinds of ways of looking at this. And motivation is one of the factors, sure.
Q. Let's just focus on what I asked you about.
A. Okay.
Q. Isn't it a fact that the studies show that tracked people that go through cessation programs, that motivation is one of the best predictors of success in quitting?
A. It depends on which study you're talking about. There are hundreds of studies on predictors of outcome. So I've just given you two that I can recall. Motivation is a very important factor and one of our jobs as treaters is to try to motivate patients to stop.
Q. What about dependence? Isn't it true that dependence, as measured on the Fagerstrom scale, is a poor predictor of success in quitting?
A. I just explained to you that in a study we did in our center with a very large number of patients, there were -- there were -- the Fagerstrom score was one of the predictors, the fact -- I don't know what the other one was right off the top of my head.



Another factor was whether or not they had a medical symptom that they related to -- to tobacco smoke. And the Fagerstrom questionnaire was very -- very predictive; it was a highly significant predictor of whether or not they were able to stop or not. The lower the score, the better the chance they had to stop.
There are other studies that are out there that show that it's not as good a predictor.
Q. Not as good a predictor. Whose studies -- whose studies have shown that?
A. I couldn't tell you off the top of my head.
Q. What about Dr. Kenford? Do you know Dr. Kenford?
A. Say again.
Q. Susan Kenford.
A. K-e-n-f --
Q. K-e-n-f-o-r-d.
A. I thought it had an S in it. I may be thinking about a different -- a different person. Is there another author on the paper?
Q. Yes, Michael Fiore.
A. Right.
Q. And are you familiar with the study that they did in 1994 regarding the predictive value of



dependence and the predictive value of withdrawal on quitting?
A. They do a lot of studies, too, and I --
If you'll show it to me, I'll look at it.
Q. Why don't you take a look at volume one, tab 21.
Actually, this one is dose.
A. Say again.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. Dependence and dose.
MR. CIRESI: May we have the exhibit number?
MR. BERNICK: Yes, it's exhibit GK000106.
A. What's the tab number?
Q. Tab number is -- volume one, tab 21.
Are you familiar with that study?
A. Yes, I am.
Q. Okay. Is this --
Are Drs. Kenford and Fiore and the other people --
This is a study published in the Journal of the American Medical Association.
A. That's correct, yeah.
Q. And that's a peer-review journal; correct?
A. It is.
Q. And would this -- so would this study be a study -- study authored by people who are relied --



are liable authorities in their field and is it published in a reputable journal?
A. Sure.
MR. BERNICK: We'll offer it, Your Honor, as a learned treatise.
MR. CIRESI: I point out it's the wrong foundation. But I'm not going to object, Your Honor.
THE COURT: All right. Right or wrong, we'll receive it in evidence.
BY MR. BERNICK:
Q. Is it true that this study by Dr. Kenford took a look at dependence, and then a bunch of -- I put them down as dose -- I'm not sure that they really are -- number of cigarettes smoked, years smoked, and blood cotinine -- blood nicotine and cotinine levels, also took a look at withdrawal severity to see whether these would consistently predict success in quitting.
A. Yeah. This is -- they did --
They used two studies, so they combined the results from two studies using the nicotine patch.
Q. With and without nicotine patch.
A. Yeah. Placebo versus active patches. So they -- but they -- but they combined two studies together in one paper, correct. And they looked



at -- they looked at a variety of factors as far as what -- what might be predictive and what might not be.
Q. And what they found is with regard to --
Fagerstrom tolerance is a dependence measurement; is it not?
A. The Fagerstrom Tolerance Questionnaire is probably the widest used questionnaire in the smoking literature. It is a short questionnaire. I think we talked about this earlier or yesterday, I think we did. And so it gives a measure of some of the smoking parameters. So it's one that's widely used,

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

yes.
Q. And is it true that with respect to the Fagerstrom tolerance -- Fagerstrom measured dependence, numbers of cigarettes smoked, years smoked, blood cotinine and withdrawal severity, that none of those factors were predictive of success in cessation?
A. I'd have to read the whole article, I guess, to refresh my memory completely.
Q. Well if you take -- take a look at what the results say. It says, "Pretreatment markers such as the Fagerstrom Tolerance Questionnaire score, number of cigarettes smoked per day, years smoked, expired



air carbon monoxide level, or baseline blood nicotine and cotinine levels, showed no consistent relationship with successful smoking cessation across both studies. Of the intratreatment markers examined, withdrawal severity and nicotine replacement levels also were not consistently predictive of cessation success."
Is that what the results reflect in the JAMA article?
MR. CIRESI: Your Honor, I'm going to object to that as being a different question than the other one, and he's implying that they're linked together. This is based on this study.
MR. BERNICK: Based on this study. Absolutely. I'll rephrase the question.
THE COURT: I think you better rephrase the question.
Q. Is that what this study showed, that none of those factors were predictive of success in cessation?
A. I'm still trying to find exactly where you are. There's different results --
Can you give me a page number where this is?
Q. It's the first page.
THE COURT: Counsel --



A. Oh, it's in the summary. I see. It's in the abstract.
Q. Yes.
A. I got I. The results -- the results and the abstract, you should understand, is just a summary of what the results are in the paper. I mean -- so usually when a person reads a scientific article, you may look at the abstract, but if you really want to know what all the results are, you go to the results section. That's all I'm saying. So I looked -- I was looking at the results, which is in the body of the -- of the paper, and it breaks it down.
Q. You tell me if the results are different from what's set forth --
A. No, I'm not. I'm just telling you I didn't know where you were.
So that's what it says, sure.

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

Q. Okay.
A. This is a study that showed that.
Q. And he goes on to conclude down at the bottom, "Traditional measures of dependence are not consistently predictive of cessation success." Is that the conclusion?
A. Within these --
I think there were 88 subjects in one study and



112 in another. That's a modest study. One of the main findings was that if you don't start -- stop smoking within the first two weeks, that was highly predictive of whether or not you were abstinent in one year. That was the main finding of this study. So any smoking at all during the first two weeks means that the person would not be abstinent in one year. And we've also found and published the same sort of findings in the same journal, I'm not sure if it was in the same year.
Q. There are other studies that say that withdrawal symptoms don't predict that -- are not predictive of success or failure; correct?
A. There are studies that say that. There are studies that say they are very predictive. They're -- this is an evolving field that has continued to evolve over time, so there -- there will be studies that will say one way or the other.
Q. Dr. Kenford has got another study in 1944 that reaches exactly the same conclusion; correct?
A. If you'll lead me to it, I'll find it. 1994?
Q. 1994, JAMA. I guess I'm asking --
What I really want to ask you is: Before you came in to testify, did you review the most current literature on what science is showing about those



factors most predictive of success? Did you take a look at the stuff?
A. I have -- I review these -- I probably re -- I -- I probably was a peer reviewer for this article. I can't remember exactly. So I review these things as they come through, as they come across my desk, and in preparation for this I did not necessarily go back and review all the articles. My file of articles is -- well not quite as many things as I have around me right now, but it's a large amount. So I didn't go back to review all of those in preparation for this. I actually do have a real job and I do go to work every day. So I cannot and could not review everything in preparation for this.
So if you'll give me Kenford's other article or Fiore's other article in 1994, I'll be glad to look at it. I mean there are that lot of articles out there that talk about the things that predict cessation, and I just explained one that we had from our clinical program which is a little bit different.
Q. Dr. Hurt, the withdrawal symptoms that you have described here previously -- and we'll get into this

http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

perhaps a little bit more on Monday -- isn't it true that Dr. Henningfield has written on the subject of the relative severity of withdrawal from cigarettes





versus withdrawal from other substances?
A. You're obviously reading from something, so you might as well tell me where it is and we'll look at it. Henningfield writes -- he probably has written 150 articles. So I can't answer that question without knowing what you're talking about.
Q. Let me just ask you: Isn't it the view of Dr. Henningfield that, comparatively speaking -- indeed he uses the words. Isn't the view of Dr. Henningfield that withdrawal from tobacco is mild?
A. If he used those words, maybe I can look at which words you're talking about. I mean that's -- that's -- it's -- it's not a -- it's a simple request. If you're asking questions quoting from an article, I think I deserve the right to be able to see it.
Q. Yeah. Well we can -- we can -- I tell you what, we'll show you the article on Monday, I just wanted to see if you knew what his views were. I'd like to go on to the success rates in your clinic just before we close out for the day.
In your clinic, I think you told us that the success rate after one year was 22 percent?
A. That's true.
Q. That's an overall success rate.





A. That's for people that received a consultation, which is basically a 45-minute or an hour consultation, and then our relapse prevention messages and telephone calls.
Q. Okay. And isn't it true, though, that you also track -- you're being too modest -- you also track the numbers of people who go through your program that quit in succeeding years?
A. The one article that we did on The Smokers Clinic did that, yes.
Q. Okay. And isn't it true that --
A. But that's -- but that's not this program, just so you're not confused. That was The Smokers Clinic. That was the clinic that I went through in 1975 --
Q. Okay.
A. -- and stopped smoking myself on November 22nd, 1975. That program no longer exists.
Q. Okay.
A. We wrote an article that was a 10-year retrospective experience --
Q. Different program.
A. -- looking at those --
Different program, different time.
Q. Is it true that if you go through only a year, if you look for success rates for only a year, there



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

are other people who were part of the program who, in later periods of time, will ultimately quit?
A. Correct, they will. And there will also be some that start. So there's a relapse rate beyond one year that's rarely measured. So it goes both ways. There is an up and a down.
Q. And isn't it true that if you can do a follow-up study, you can see not only what the quit rate is after one year, but what it is over a longer period of time.
A. That would be great if you did that, right.
Q. And isn't it true --
I won't confuse it with the 22 percent one that you gave us, but with the prior clinic, you actually achieved over a longer period of time about a 43 percent quit rate.
A. And one of the critiques of that article we got from the peer reviewers was --
Q. Can we just get whether that was the result, because I said that and I wanted to find out whether that's the right figure; that is, that over a more extended period of time, it ultimately ended up being 43 percent that were successful in quitting; correct?
A. If you'll let me explain, I'll explain what I was getting ready to say.


Q. First let's find out if the numbers are right.
A. I would have to look at the article to tell you.
THE COURT: Counsel, I do think you should let him explain.
MR. BERNICK: Okay. Fine. I'm happy to hear the explanation, I'd just like to hear the number, too. Go ahead.
A. Okay. Let's assume that it's 43 percent, and it probably is because you obviously are reading it. The point is that that was a retrospective study of people that came into The Smokers Clinic and we followed them over time, so the 43 percent is related to a small denominator. There were people we could not track and could not keep up with over time. So of those that entered, I think at the one-year stop -- one-year stop rate was in the 20 percent range if I remember correctly, and then we followed as many people forward in time as we could, and -- and so we had the number, the denominator, which is the number that we were able to follow, and we asked them if they had stopped smoking, that's where that number comes from. But the denominator was much smaller, the number on the bottom was much smaller than the number that actually entered. So this was not a attempt to treat analysis of that data, which


is --
This is a little bit misleading because of that, and when the article was reviewed by the peer
http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001

reviewers, they said well this is a retrospective study which is -- you have to be sure you understand this, and that's why I wanted to explain it.
Q. Well actually I now have the article. I have 45.9 percent --
MR. CIRESI: May we --
Q. -- after four years.
MR. CIRESI: Excuse me, excuse me. Your Honor, could we mark the article, because, you know --
MR. BERNICK: Sure.
MR. CIRESI: -- you take out one paragraph and we'd like to see the other paragraphs.
THE COURT: I think it's time to mark the article.
Q. Take a look at volume two, tab 83.
MR. CIRESI: May I have an exhibit number, please.
MR. BERNICK: I'll get it for you. Do you have that one?
THE WITNESS: Okay.
MR. CIRESI: Just a minute, doctor, I'd



like to get a copy.
MR. BERNICK: Oh, I see. This is one of his publications, so it wasn't premarked as a trial exhibit. We provided notice in our letter, Your Honor, that we would also use his publications on cross-examination.
MR. CIRESI: Can we have the title?
MR. BERNICK: Yeah, it's "Long-term Follow-up of Persons Attending a Community Based Smoking Cessation Program."
MR. CIRESI: Thank you.
While counsel is looking, may I mark this one, Your Honor, 25008? And we'd have no objection to the exhibit as a learned medical treatise.
THE COURT: Maybe we should adjourn at this time. Would this be a good point to adjourn, counsel?
MR. BERNICK: I've got about maybe -- I don't want to keep people here. Let's -- let's just adjourn.
THE COURT: All right. We'll adjourn and reconvene Monday morning at 9:30.
THE CLERK: Court stands adjourned, reconvene Monday morning at 9:30.
(Recess taken.)



http://legacy.library.ucsf.edu/tid/xqm35a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/zzhd0001